Appendix A – Palo Verde Regional Park Plan of Development

PINAL COUNTY

Palo Verde Regional Park

Plan of Development

Draft: October 2021

U.S. Department of the Interior
Bureau of Land Management

Palo Verde Regional Park

DRAFT PLAN OF DEVELOPMENT

Submitted to:
U.S. Department of the Interior
Bureau of Land Management
Lower Sonoran Field Office
21605 North 7th Avenue
Phoenix, Arizona 85027
623-580-5500

October 2021

It is the mission of the Bureau of Land Management to sustain the health, diversity, and productivity of the public lands for the use and enjoyment of present and future generations.

Table of Contents

List of Figures

List of Tables

1. Introduction

Pinal County filed an application on December 16, 2020 to the Bureau of Land Management (BLM) Lower Sonoran Field Office under the Recreation and Public Purposes Act (R&PP) to lease the land for three regional recreational uses conducive to the area: day use, overnight camping, and off-highway vehicle (OHV) use. The three parcels proposed to be leased through the R&PP Act for the Palo Verde Regional Park consist of approximately 493.3 acres of public land currently managed by the BLM.

The primary value and attraction of this proposed public park is the opportunity to provide visitors from the region with exposure to the unique natural character of this upper Sonoran Desert setting. The character of the landforms, geology, cultural and historic context, and flora and fauna combined with the rural setting of this area will appeal to many outdoor recreation enthusiasts. The design intent is to artfully and sensitively arrange park facilities to provide the public with outdoor recreational opportunities conducive to the region and the natural character of the Palo Verde Mountains while minimizing impacts to the environment.

This plan of development describes three locations for these recreational uses (see Figure 1 on page 3). Each R&PP parcel offers a different suite of amenities and a different balance of active and passive recreation. Supporting infrastructure improvements are proposed to provide basic services for restrooms, host sites, and maintenance operations but are intended to maintain the rustic, rural character of the area.

1.1 Statement of Need

Pinal County has been growing at an unprecedented rate in the recent decades and was the second fastest growing county in the nation between 2000 and 2010 with a 109 percent increase in the population. It has been estimated that by 2050 there will be approximately 1.3 million people living within Pinal County (The Trust for Public Land 2012). Along with this rapid growth, there has been an increased need for outdoor recreation facilities including in and around natural areas such as the Palo Verde Mountains.

In anticipation of this growth, the *Pinal County Open Space and Trails Master Plan* was prepared in 2007 and incorporated into the "Open Space and Places" section of the *Pinal County Comprehensive Plan* (2009, last amended in 2019). From June to November 2006, public meetings were held throughout Pinal County to identify the needs and interests of the public to prepare the master plan, which was approved in October 2007. The proposed Palo Verde Regional Park land currently owned by the BLM was identified as Regional Park #4 in that master plan. Additional meetings with the public and stakeholders were conducted in 2015 and 2016 to determine local and regional interest in County park facilities at the Palo Verde Mountains as part of master plan effort for this area. Meeting and online participants voiced interest in passive recreation activities such as hiking, camping, and picnicking as well as active recreation like OHV and shooting sports.

1.2 Statement of Purpose

The vision for the master plan states, "Pinal County's Open Space and Trails Master Plan promotes the quality of life of the region by providing areas of passive and active recreational opportunities, while conserving existing resources, such as natural scenic beauty, view corridors, wildlife habitat, agricultural resources designated at risk, and cultural heritage for the benefit of present and future generations. This Plan will encourage appropriate long-range growth planning opportunities, provide for a wide range of recreational activities for residents and visitors, preserve the County's rural and natural open space character, and contribute to the well-being of its communities."

In order to continue to provide unique recreational opportunities to current and future residents, as well as visitors to the region, the County will need to acquire or lease the proposed lands. By developing and managing these improved R&PP sites, the County can assist in the protection of this natural desert resource while creating opportunities for recreation and enlarging public awareness of the beauty of the Palo Verde Mountains.

Proposed day-use facilities include trailheads; picnic areas; an equestrian staging area; an archery range; and non-motorized, multi-use trails for hiking, running, biking, and equestrians. Proposed camping facilities accommodate tents and recreational vehicles (RVs). Proposed OHV facilities provide an open-ride area, access to motorized trails for OHV users, and a vehicle staging area. These facilities will serve both the local and regional communities.

Specific use fee categories for standard amenities, expanded amenities, and special recreation permits will be a future policy decision by the Pinal County Board of Supervisors. Charged fees will be commensurate with the benefits and services provided to Palo Verde Regional Park visitors and correspond to the County's standard facility fees for similar amenities. Collected fees will be used to maintain the proposed R&PP sites and provide additional facilities for future phased improvements.

1.3 Location

The R&PP sites are located within an unincorporated area on the western boundary of Pinal County in the Palo Verde Mountains, just west of the City of Maricopa. This area is identified as a proposed regional park in the *Pinal County Comprehensive Plan*. The Palo Verde Mountains are the central focus of the recreational opportunities, and three R&PP parcels have been identified for proposed recreation facilities and are intended to be leased by Pinal County:

- A trailhead and staging area off McDavid Road (Figure 2)
- A trailhead and campground off Farrell Road (Figure 8)
- An OHV area off Table Top Road (Figure 14)

These areas are mapped on Figure 1 and discussed in further detail in the following sections regarding proposed programming, infrastructure, facilities, site impacts, and cost evaluation. Table 1 on page 4 includes legal descriptions for the proposed R&PP parcels and Table 2 on page 5 lists overall and developed acreages. Due to the configurations of the sites and the feasibility of providing utilities to these sites, offsite improvements are planned to the approaching access roads.

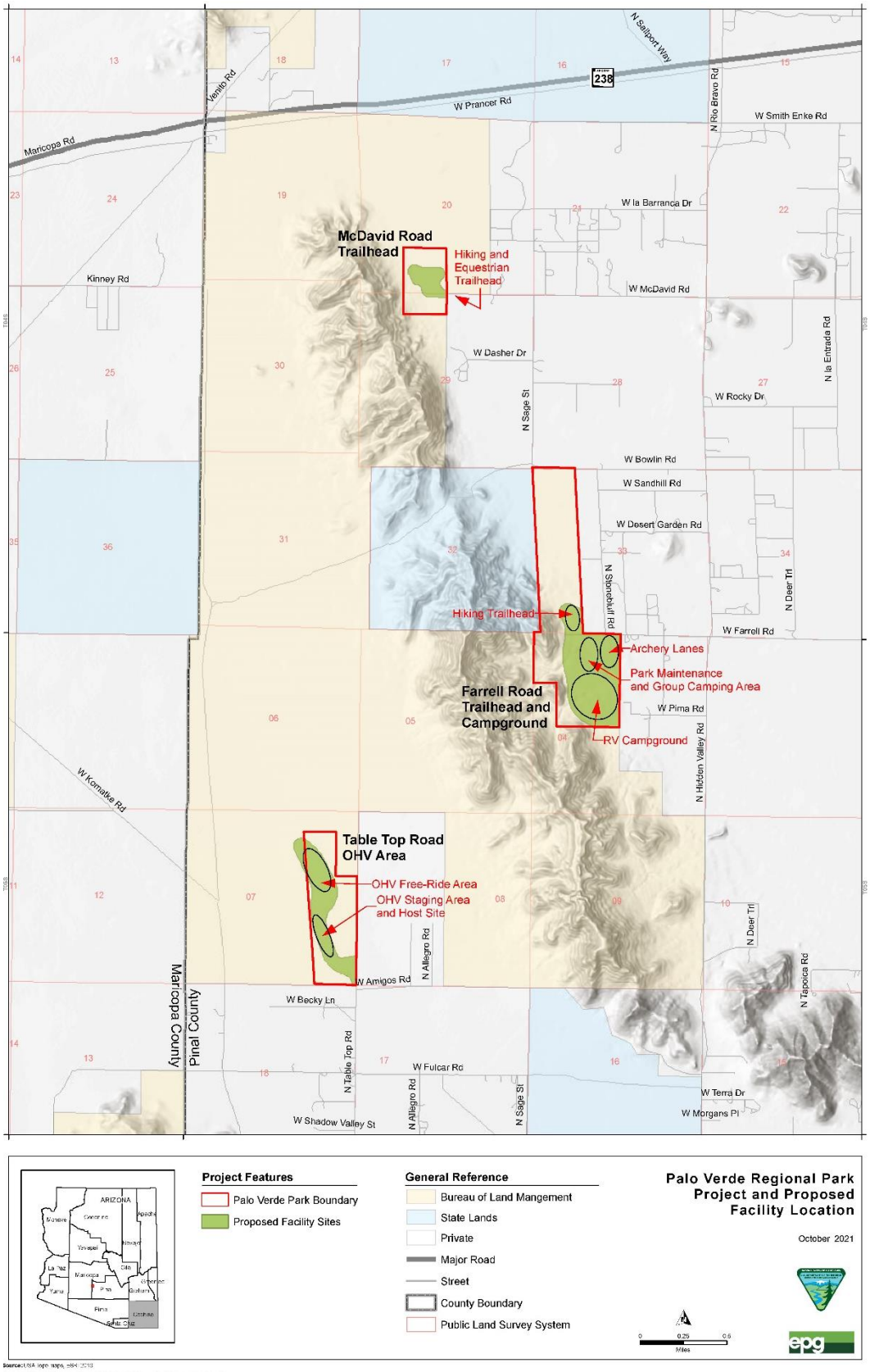

Figure 1. Palo Verde Park Project and Proposed Facility Location

Table 1. R&PP Proposed Land Legal Descriptions

Site	Township	Range	Section	Type	Quarter
McDavid Road Trailhead and Staging Area	T4S	R2E	20	Government Lot	L 4
McDavid Road Trailhead and Staging Area	T4S	R2E	29	Aliquot Part	NWNE
McDavid Road Trailhead and Staging Area	T4S	R2E	29	Aliquot Part	NENW
McDavid Road Trailhead and Staging Area	T4S	R2E	20	Aliquot Part	SWSE
Farrell Road Trailhead and Campground	4S	2E	32	Government Lot	L 16
Farrell Road Trailhead and Campground	4S	2E	33	Government Lot	L 3
Farrell Road Trailhead and Campground	4S	2E	33	Government Lot	L 1
Farrell Road Trailhead and Campground	4S	2E	33	Government Lot	L 4
Farrell Road Trailhead and Campground	4S	2E	33	Government Lot	L 2
Farrell Road Trailhead and Campground	4S	2E	28	Aliquot Part	SWSW
Farrell Road Trailhead and Campground	4S	2E	33	Aliquot Part	SESW
Farrell Road Trailhead and Campground	5S	2E	4	Government Lot	L 4
Farrell Road Trailhead and Campground	5S	2E	4	Government Lot	L 3
Farrell Road Trailhead and Campground	5S	2E	4	Government Lot	L 2
Farrell Road Trailhead and Campground	5S	2E	4	Aliquot Part	SWNE
Farrell Road Trailhead and Campground	5S	2E	4	Aliquot Part	NWSE
Farrell Road Trailhead and Campground	5S	2E	8	Aliquot Part	NWSW
Farrell Road Trailhead and Campground	5S	2E	4	Aliquot Part	SWNW
Farrell Road Trailhead and Campground	5S	2E	4	Aliquot Part	NESW
Farrell Road Trailhead and Campground	5S	2E	4	Aliquot Part	SENW
Table Top Road OHV Area	5S	2E	7	Aliquot Part	NENE
Table Top Road OHV Area	5S	2E	7	Aliquot Part	NESE
Table Top Road OHV Area	5S	2E	7	Aliquot Part	NWNE
Table Top Road OHV Area	5S	2E	7	Aliquot Part	NWSE
Table Top Road OHV Area	5S	2E	7	Aliquot Part	SENE
Table Top Road OHV Area	5S	2E	7	Aliquot Part	SESE
Table Top Road OHV Area	5S	2E	7	Aliquot Part	SWNE
Table Top Road OHV Area	5S	2E	7	Aliquot Part	SWSE

An overview of the R&PP parcels is tallied in Table 2 to correspond with the facility areas shown in green and the site boundaries shown in red on Figure 1 as well as the total calculated areas of disturbance for the facilities at each site, which are listed in further detail in the following sections of this document. The green facility areas include additional acreage beyond the

anticipated footprints of the facilities to ensure that the facilities can be reasonably constructed within the leased areas and to avoid potential future conflicts.

Table 2. Park and Facility Acreages

Proposed R&PP Site	Acreage		
	Site Disturbance	Facility Area (green)	R&PP Boundary (red)
McDavid Road Trailhead and Staging Area	9.47	18.50	60.59
Farrell Road Trailhead and Campground	24.70	114.04	298.38
Table Top Road OHV Area	6.49	56.23	134.31
Total Acres	**40.66**	**188.77**	**493.28**

1.4 Park Facility Phasing Approach

The long-term objective of Pinal County will be to fully develop the three separate park facility areas and the interconnecting trail system for the Palo Verde Regional Park. The facilities are intended to be authorized under a 25-year R&PP lease and the trail system is intended to be authorized under a 30-year right-of-way grant. The combined implementation of the trails and facilities will provide a range of recreational opportunities for County residents. The funding and resources needed for the implementation, operation, and maintenance of these three R&PP parcels will be significant and will have to be approved and incorporated in the sequential funding structure of the County. This will lead to the need to develop these park facilities in a series of phases over an extended period.

The County's approach to phasing the development of these facilities will allow for flexibility as to how and when the various facilities will be implemented. With three separate areas offering varied facilities, the County will have options as to where and what facilities will be initially developed and which other facilities or which additional enhancements may be done at a subsequent date. The public demand for facilities will be the primary catalyst in terms of the sequence for which areas and facilities will be developed initially in the overall sequence. When a high public demand is apparent for a certain type of facility that is proposed for one of these park areas, the County will prioritize the funding for those facilities to respond to the public's need.

A second approach that will be a part of the evaluation to the phasing program will be developing the facilities to a level that accommodates the recreational use, but the area may not be fully improved during the initial phase of construction. For example, if a trailhead is highly desired by the public, the initial development may be installed to accommodate the entry drive and parking as an initial phase. The trailhead will be developed in a condition that could be referred to as rustic with the initial installation simply including chip-sealed graded roads and parking areas that are not paved. Over time as funding becomes available and as user demand increases further, enhancements will be implemented. The subsequent construction phases will include improvements such as the addition of paved roadways and parking areas along with other comfort facilities such as restrooms and ramadas. Initial park entries may be managed with the

use of iron rangers, which will eventually be further enhanced with designated pay stations with attendants.

It should be noted that the following facility area graphics and the associated descriptions portray what would be considered the full build out for each area. This is done to show what the vision is with regards to how these recreational facilities will serve the public and to also define the areas of the sites that will be impacted by the park facilities when each area achieves full build-out.

2. McDavid Road Trailhead and Staging Area

2.1 Proposed Program and Design

The McDavid Road Trailhead and Staging Area is intended to serve passive recreational users with day-use trailhead and equestrian staging facilities, including shaded picnic areas, restrooms, mounting blocks, hitching posts, and parking for both cars and trailers (see Figure 2). This site serves as an access point to enjoy additional passive recreation activities in the Palo Verde Mountains, such as hiking, mountain biking, equestrian trail riding, and nature walks. Access to this site will be controlled and fees for using the amenities may be collected by a pay attendant or self-pay iron ranger. Two host sites are proposed for this area to allow onsite County volunteer hosts to oversee the daily operations and maintenance of the facilities.

2.2 Proposed Infrastructure and Facilities

The various improvements proposed for this site are grouped into the following categories: roadway system, utilities and site operations, perimeter treatments, and park facilities. Each proposed facility under these categories is described along with its proposed use, users, and design criteria in the following sections. It is anticipated that improvements will be in accordance with the *Pinal County Open Space and Recreation Area Guideline Manual* (2012).

2.2.1 Vehicular Access

The hierarchy of roads includes the public roadway of McDavid Road leading to the trailhead entrance, the loop drive at the trailhead entrance, the internal drive, and the vehicular parking areas serving the facilities at this trailhead. These roadways will require natural drainage crossings to maintain existing flow patterns on the site.

2.2.1.1 Offsite Roadway Improvements to McDavid Road

Description: The proposed entrance occurs along the McDavid Road alignment. The paved portion of McDavid Road currently terminates at Sage Street and continues farther west as a dirt road. The construction of this trailhead will require improving the existing two-track trail along the McDavid Road alignment to the trailhead entrance. This extension is outside of the project study area and will require coordination with the County for the construction of this two-lane road. The County will need to establish right-of-way for McDavid Road up to the park entry, and the roadway extension will become an improved County road. Optimally, utility extensions to the trailhead and staging area will be designed and constructed concurrently with the roadway design (see page 11). The McDavid Road improvements will lead into a one-way turnaround loop that will serve as the entry to the trailhead and equestrian facilities.

Intended use: This roadway extension will serve as the primary ingress and egress for public and service vehicles entering the site.

Intended users: The primary users will be visitors using the trailhead and staging area facilities as well as County maintenance staff and emergency and patrol service providers.

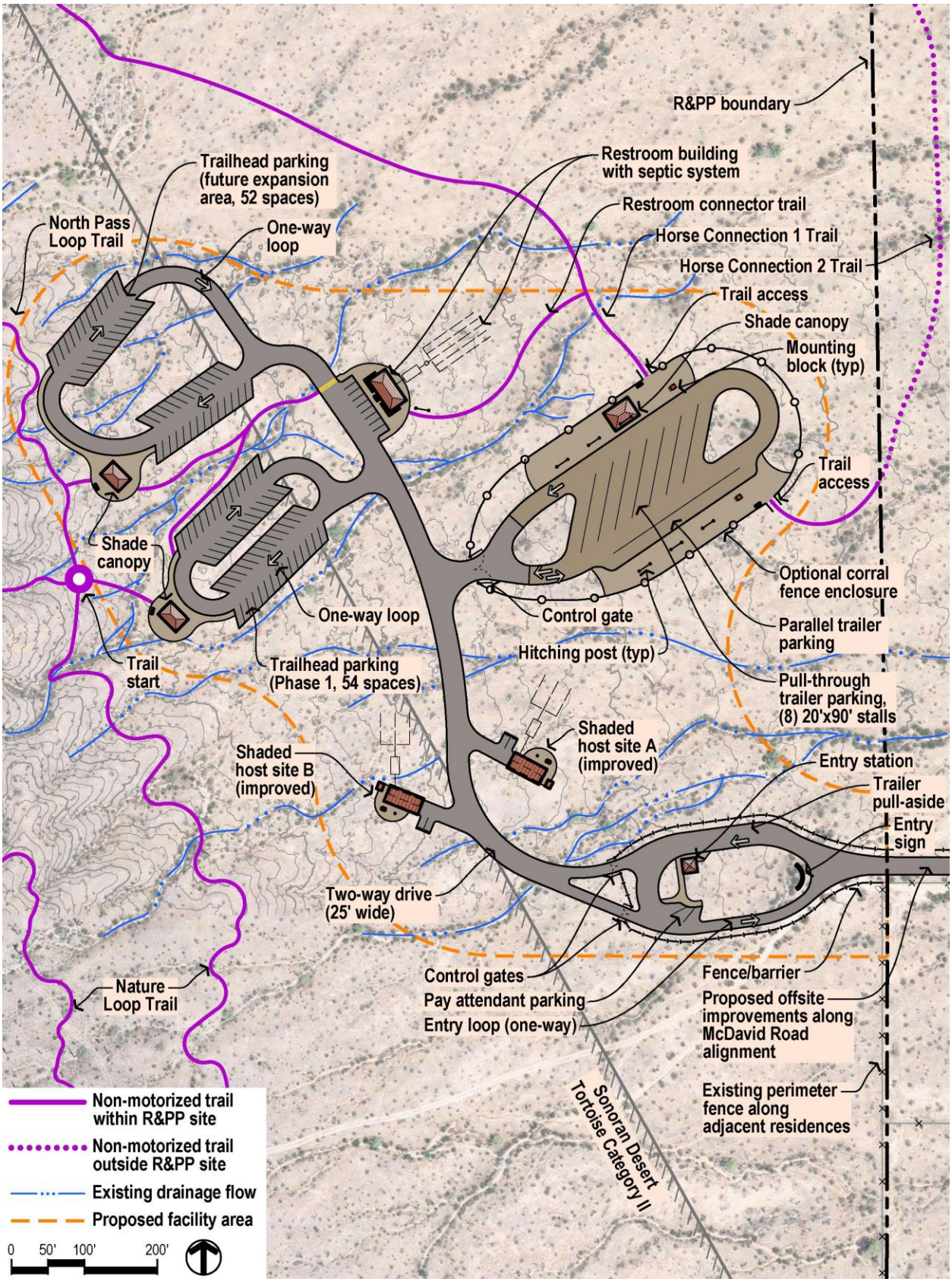

Figure 2. McDavid Road Trailhead and Staging Area

Design criteria: Roadways will be sized to meet the requirements of the local transportation standards for the intended uses within the park as specified by Pinal County. The typical trailhead visitors will access the park via standard passenger vehicles, pick-up trucks pulling trailers for equestrians, RVs, and school buses. The surface condition of this roadway may be chip-sealed graded roadbed initially and then later paved with asphalt as a phased improvement.

2.2.1.2 Site Entrance

Description: This one-way turnaround loop allows arriving visitors to enter the site and check in with the attendant at the entry station as well as easily exit the site when the park gates are closed (see Figure 3). The loop drive will be a single lane drive with a parallel pull-aside area at the approach to allow park visitors to pull over at the entry station or iron ranger (see page 14). Vehicular swing gates will be located past the entry station at the site ingress and egress along with a Knox Box for emergency access. Three parking spaces are provided along the loop for the pay-attendant and other administrative vehicle use. Pinal County Open Space and Trails Department signage will feature the park and trailhead name prominently at the McDavid Road entrance into the trailhead (see page 19).

Intended use: This primary entry will serve as the primary ingress and egress for all public vehicles entering the park and as the control point for park access. This entry will accommodate both patrons and service staff regardless of their intended functions within the park, including recreational and service activities.

Intended users: The primary users will be members of the public who intend to use any of the recreational activities available within the park. Users also include service and maintenance staff employed by the County who have operational activities to perform as well as emergency and patrol service providers.

Design criteria: Roadways will be sized to meet the requirements of the local transportation standards for the intended uses within the park as specified by Pinal County. The surface condition of this roadway may be chip-sealed graded roadbed initially and then later paved with asphalt as a phased improvement. The entry loop will accommodate one-way traffic consisting primarily of cars, pickup trucks, RVs, vehicles towing equestrian trailers, and school buses. The exit lane leading out of the park will enter onto McDavid Road travelling eastbound. The administrative parking spaces will be set on a diagonal to reinforce the one-way directional flow of the loop. The parking stall dimensions will accommodate 10 feet at its narrowest width and be 20 feet deep with wheel stops to help define the space.

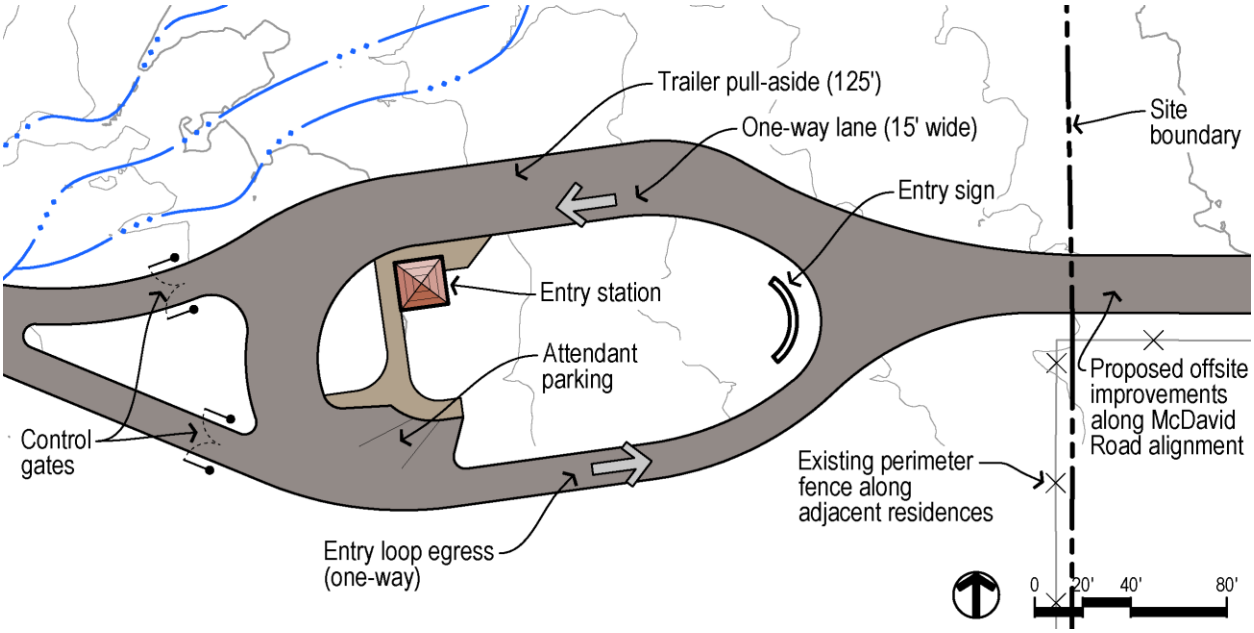

Figure 3. McDavid Road Entry Loop

2.2.1.3 Internal Roadway

Description: The proposed internal roadway is intended to allow vehicular access from McDavid Road to the recreational amenities within the trailhead and will be accessible when the park is open for visitors. This drive will serve as a collector road with intersections at three parking areas and access to the two host sites. This two-way drive will provide one lane to travel in each direction.

Intended use: The internal roadway will provide a direct vehicular connection between the McDavid Road entrance and the parking areas for the trailhead and staging facilities. This roadway will also provide access to the host sites.

Intended users: The internal roadway is intended to be utilized by park visitors as well as park staff and emergency personnel.

Design criteria: The internal road will accommodate vehicular traffic consisting of standard passenger vehicles, pick-up trucks pulling trailers, RVs, school buses, maintenance vehicles, and emergency response vehicles. The road alignment and design are intended to promote safe driving practices. The posted speed limit is anticipated to be around 10 to 15 miles per hour or as designated by the County. The road surface may be chip-sealed graded roadbed initially and then later paved with asphalt as a phased improvement. The two-lane roadway will be 25 feet wide with 12.5 feet of driving width each direction and a 4-foot shoulder on each side. The shoulders will be graded to direct drainage flows away from the roads. It is not anticipated that the roadway will be striped. The designed width will allow a vehicle to pass another disabled vehicle when necessary.

2.2.1.4 Wash Crossings

Description: The proposed roadway and parking areas in this site are designed to cross minor drainage courses so that the site facilities can be located outside of these wash areas. While the

aerial view of this site reveals these drainage courses through linear groupings of vegetation, these drainage patterns are barely perceptible at the ground level. As such, it is anticipated that these wash crossings can be accommodated through dip crossings.

Intended use: The wash crossings are intended to continue the existing drainage patterns on site with minimal disturbance by the roadway and parking areas.

Intended users: It is anticipated that most users will be visitors in passenger vehicles and pick-up trucks pulling trailers. Other vehicles that will also need to cross these washes include park maintenance vehicles, waste management vehicles, and emergency service vehicles. It is anticipated that these crossings may be used by for foot traffic, either by visitors or park staff.

Design criteria: The dip crossings will be engineered to accommodate the typical flows anticipated and be designed into the roadway vertical alignment. This simple design will contain and direct the natural flow of water over the roadway. Rip rap will be provided on both sides of the crossing to minimize erosion of the roadway base and help maintain the road's integrity. Permanent depth markers will be located on both sides of the roadway to provide enhanced safety measures for park visitors. To accommodate pedestrian use, it is anticipated that the longitudinal slopes will not exceed 5 percent and the cross-slopes will not exceed 2 percent to avoid creating ramp conditions as defined by the Americans with Disabilities Act (ADA).

2.2.2 Utilities and Site Operations

Site utilities for water, electric, and septic systems are discussed, as well as the operational needs for this site in terms of maintenance, host accommodations, and trash collection.

2.2.2.1 Utility Services

Description: Currently, there are no utilities available at this site. It is anticipated that potable water and electric service would be delivered to the site either with initial construction or with future site improvements for use at restrooms, host sites, and the entry station from existing services along McDavid Road. Sewer and communication lines are not intended to be developed at this site at this time; restrooms and host sites would be designed with septic systems and leach fields.

Intended use: The anticipated potable water uses at the restroom facility include plumbing for toilets, sinks, drinking fountains, and personal jug fillers. This potable water would provide a safe method of hand washing as well as drinking water for visitors and their pets. The restroom would also have electric service for hand dryers and security lighting. A separate jug filler would be located at the equestrian staging area to provide water for horses and to fill personal water containers. The entry station would also be equipped with electricity for heating and cooling. Each host site would have a single hose spigot for water hookup to an RV as well as an RV electrical hookup. Septic systems would be provided for the restroom and host sites.

Intended users: The main users of the water and electric services, as well as the septic systems, are intended to be park visitors, hosts, and staff.

Design criteria: It is anticipated that connections to existing water and electric utilities may be made within the right-of-way and easements along McDavid Road; however, this still needs to

be confirmed. These water and power connections would be located underground. Outdoor water spigots for water bottle filling would be elevated to provide a level of comfort for users and would be designed to be vandal resistant. A concrete pad would be located around each water jug filler spigot to reduce muddy surroundings and would be sloped away from adjacent paths. Furthermore, an auto shut-off valve would be installed at each jug-filling location to minimize wasted water if the spigot is accidentally left open. Bathroom lavatories would be equipped with automatically timed faucets and low-flow toilets to minimize water waste as well.

2.2.2.2 Maintenance Facilities

Description: The maintenance facilities for the operations of this trailhead site will be located at the Farrell Road Trailhead and Campground site (see page 33). Minor onsite maintenance efforts will be performed by the park hosts. This minor maintenance work will be limited to assignments that can be completed by hand tools, which may be stored in a tool shed located at the host site. Onsite trash collection will also be performed by the host(s) and taken to the Farrell Road Trailhead and Campground maintenance facility.

2.2.2.3 Host Camp Sites

Description: The County will provide two host sites for volunteer hosts to serve as the public liaisons for the park. While serving as the park's ambassadors, these hosts will also be the eyes and ears for the County regarding the activities that occur within the park. Additionally, the host will have several daily maintenance tasks to perform, such as securing control gates as needed, removing trash and hauling it to a dumpster at the Farrell Road maintenance yard, cleaning restrooms, and maintaining the park facilities in a clean and orderly manner. It is expected that the host will have a pickup truck or similar vehicle for use during their maintenance activities and two parking spaces for that vehicle will be provided at each host site.

Intended use: Each host site will be a permanent location with facilities intended to improve the level of comfort for the hosts and accommodate the setup of their RVs. This site will serve as their place of residence while they are performing their host duties.

Intended users: Each host site will serve an individual or couple who use this site as their residence while fulfilling their obligations as a park host.

Design criteria: The host sites are located where they are visible to the public but also provide a level of privacy for the hosts. The elements needed for each host site include a driveway, an RV parking area long enough to accommodate up to 50 feet in length, two additional parking bays for vehicles, a patio area, a storage shed, and a shade canopy for the RV and patio (see Figure 4). There will be water and electric RV hookups. A hook-up will also be available for connection to a small septic tank with a leach field; this septic system will be limited to use by the host. The specific engineering for the leaching area will be developed following the testing of the soil percolation rates within the area of the proposed leach field. A fence line may be needed to separate the host's entry drive from the leach field to avoid any vehicular access onto the leach field area that may jeopardize the effectiveness of the field.

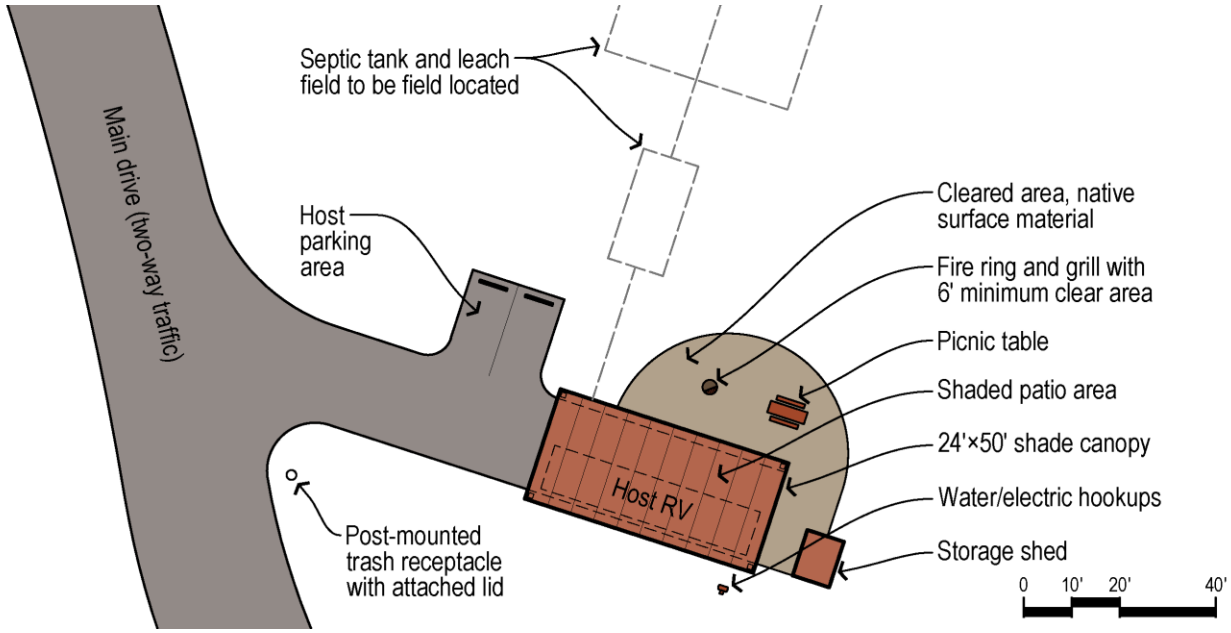

Figure 4. Typical Host Camp Site

2.2.2.4 Trash Receptacles

Description: Heavy-duty, animal-resistant trash receptacles are intended to be located at key use areas throughout the site, such as the restrooms and shade canopies, as well as the host sites. These trash stations will be relatively convenient to encourage the public to place their trash at these locations and help reduce site litter.

Intended use: Individuals visiting the park may deposit their day-use trash at these locations. County park staff will collect trash from these receptacles, haul it offsite to the Farrell Road maintenance yard (see page 33), and place it in an appropriately sized dumpster at this location for pickup.

Intended users: The intended users are park visitors as well as staff.

Design criteria: The trash collection stations will be composed of heavy-duty metal trash receptacles specifically designed to be animal-resistant (specifically designated as bear proof). The lids for these units are integral to the receptacle and hinged to facilitate easy use without requiring lid removal. The receptacles will accept plastic liners to facilitate the bagging of the trash when it is collected from these containers. The trash units will be placed in areas that are convenient for users and where they would most likely want to unload their trash. The roads that service park facilities are wide enough to provide room for patrons to drive around a service vehicle when staff is collecting trash, so the need for a widened parallel vehicular pull-off lane for trash stations is not anticipated.

2.2.3 Perimeter Treatments

Existing fencing occurs along adjacent residential properties and no additional perimeter fencing is anticipated at this site.

2.2.3.1 Entry Station

Description: The entry station is intended to provide a sheltered space for County staff to welcome park visitors, provide park information, and collect user fees, if applicable. Depending on availability of funds and whether the County will collect user fees, the entry station may initially be installed as a signage kiosk with a self-pay iron ranger, which is a metal box that grants authorized access permits by depositing a fee. Iron rangers rely on the volunteer participation of visitors with the hope that occasional patrolling and enforcement by checking permits helps improve the participation level.

Intended use: The entry station provides a welcoming point for County staff to interact with users to answer questions and collect day-use fees, if applicable. For the iron ranger, users will pay by cash by pulling up to collect a pay envelope and place their payment in the metal box. Park rangers will collect these payments and be able to patrol the park to confirm users of the facilities have made the appropriate payment.

Intended users: The intended users will be County staff manning the station and park visitors.

Design criteria: The entry station may be installed as a prefabricated unit according to the manufacturer's instructions. The building and its color palette should be selected to complement the natural desert setting and other site structures, including the restroom facilities and shade canopies. An iron ranger is a manufactured product that can be ordered and purchased from a manufacturer and should be installed per the manufacturer's recommendations.

2.2.3.2 Fencing

Description: This site features a wire-strand barrier fence north of the McDavid Road access drive and around the entry loop drive to connect to the vehicular entry gates. This fencing also extends south of the R&PP parcel along the eastern perimeter alignment where residential fencing does not already occur to approximately the Bowlin Road alignment. It is intended that the Pinal County Open Space and Trails Department will be responsible for installing and maintaining this fencing. As needed, the County may supplement this fencing with the installation of large boulders, cacti, or downed tree limbs to deter access to areas of the site.

Intended use: The fencing delineates the site entrance and deters undesired traffic into the site.

Intended users: While the fencing is not intended to be used as an amenity by visitors, it helps the County maintain access to and within the site. As a secondary use, the fencing serves as a wayfinding feature for visitors.

Design criteria: The wire-strand fencing will consist of steel fence posts and four rows of stranded wire. The top three strands will be barbed wire while the bottom row will be barbless in order to permit free ingress and egress for wildlife. All steel will be untreated and allowed to oxidize naturally in keeping with the rural and natural character of the surroundings and to minimize the visual impact of the fencing. If boulders are added as barriers, they should be large enough as to not be easily moved either by human force or with the assistance of a vehicle. At least the bottom third of the boulder should be buried during installation to reduce the ease of moving them out of place.

2.2.3.3 Control Gates

Description: Double-wide control gates will be installed at the site entrance and the staging area.

Intended use: These gates will restrict access to the site and staging area after park hours and during temporary facility closures.

Intended users: It is intended that the Pinal County Open Space and Trails Department will be responsible for operating and maintaining gated access points into and within the site to communicate closures to park users.

Design criteria: The gates will be simple double-leaf barrier gate arms made from galvanized steel that can be closed and locked when required to prevent unwanted access. A Knox Box will be provided at each gate for emergency personnel access as well as park staff. The gates will have night vision marking tape for enhanced visibility at night.

2.2.4 Facilities

2.2.4.1 Trailhead Parking Areas

Description: It is anticipated that trailhead parking will be in demand at this site. The area chosen offers easy access to the Palo Verde Mountains trail network. The area is relatively flat with minimal impact to smaller washes and natural flora. Two parking loops are proposed (see Figure 5). The south loop is intended to accommodate the initial parking demand of 54 stalls and the north loop illustrates a possible parking lot expansion of 52 stalls to be added in the future as the need arises and funds become available. The parking areas at this site are designed to accommodate one-way travel with angled parking stalls. Eight additional head-in stalls are provided at the restroom facility. Parking at the equestrian staging area is discussed separately (see page 15). Landscape islands within the parking areas shall remain natural desert in keeping with the existing vegetation.

Intended use: The parking areas provide day-use access to the site facilities and trail network for hiking, wildlife watching, mountain biking, and picnicking. No overnight parking will be permitted in these parking areas.

Intended users: The parking areas serve local and regional users accessing the site by vehicle.

Design criteria: Typical parking stalls will be 10 feet wide by 20 feet long with wheel stops. The road surface may be chip-sealed graded roadbed initially and then later paved with asphalt and striped as a phased improvement. The parking areas will provide ADA-accessible stalls per County and federal regulations. The radii for the drive aisles will accommodated RVs and buses.

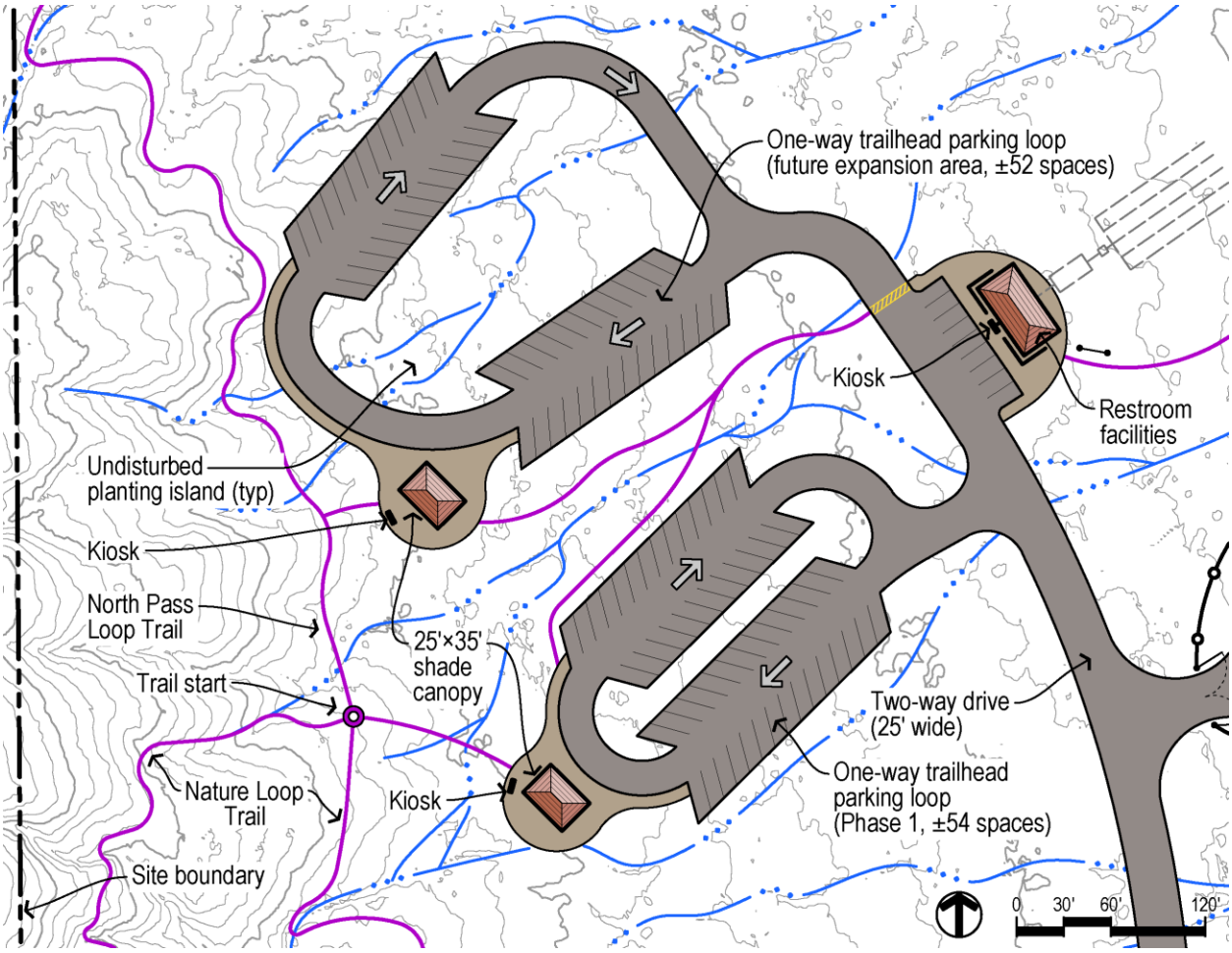

Figure 5. McDavid Road Trailhead

2.2.4.2 Equestrian Staging Area

Description: There currently exists a need and desire from the local community to be able to continue to use the park for equestrian use. Currently there are no equestrian staging areas near the existing trails. Therefore, it is the desire of the County to provide an equestrian staging area for visitors pulling large trailers with horses a place to park and prepare for trail rides. There will be hitching posts for visitors to tie up their horses, mounting blocks, a water jug spigot, a shaded canopy, and trash receptacles. A corral fence enclosure may be provided to help keep horses within the staging area while preparing for their ride.

Intended use: This area will be designed for the specific use of staging equestrian activities such as loading, unloading, hitching, and mounting horses for recreational trail rides.

Intended users: The staging area will be open to the public and those who want to trailer their horses to the park.

Design criteria: This staging area will provide eight stalls at 20 feet wide by 90 feet long for ample room to accommodate maneuvering horses between trailers. A 250-foot long pull-out trailer space is provided on one side, which can provide up to three additional parking spaces. The parking area is intended to accommodate two-way travel with a secondary one-way egress

provided to allow visitors to exit when the lot is full. The staging area parking will consist of a graded roadbed with a gravel surface layer rather than paved to provide greater comfort for the horses. The relatively flat terrain from McDavid Road should allow long trailers to access the staging area easily. The road radii have been designed to easily allow long trailers to drive in and out of the staging area from the main internal drive.

Separating the equestrian staging from the trailhead parking allows equestrians the ability to load and unload their horses and prepare for trail rides without the distractions and dangers associated with passenger vehicles nearby. Access to the trail network from the staging area will go around the trailhead parking lot to avoid conflicts with other park visitors and vehicles. A shade canopy is proposed to allow visitors to gather as groups or to serve as a respite for individuals beginning or finishing their ride (see page 18). Permanent mounting blocks will be provided along with steel hitching posts, a water jug spigot, and trash receptacles. An entry control gate is shown in conjunction with an optional corral fence enclosure to help control ingress and egress; this gate will have Knox Box for emergency access. The parking landscape islands will be treated in the same manner as the other parking lots and will be left as is without any additional plantings. Significant existing vegetation such as specimen trees and cacti will be protected in place as much as possible. The figure below shows the overall layout of the staging area.

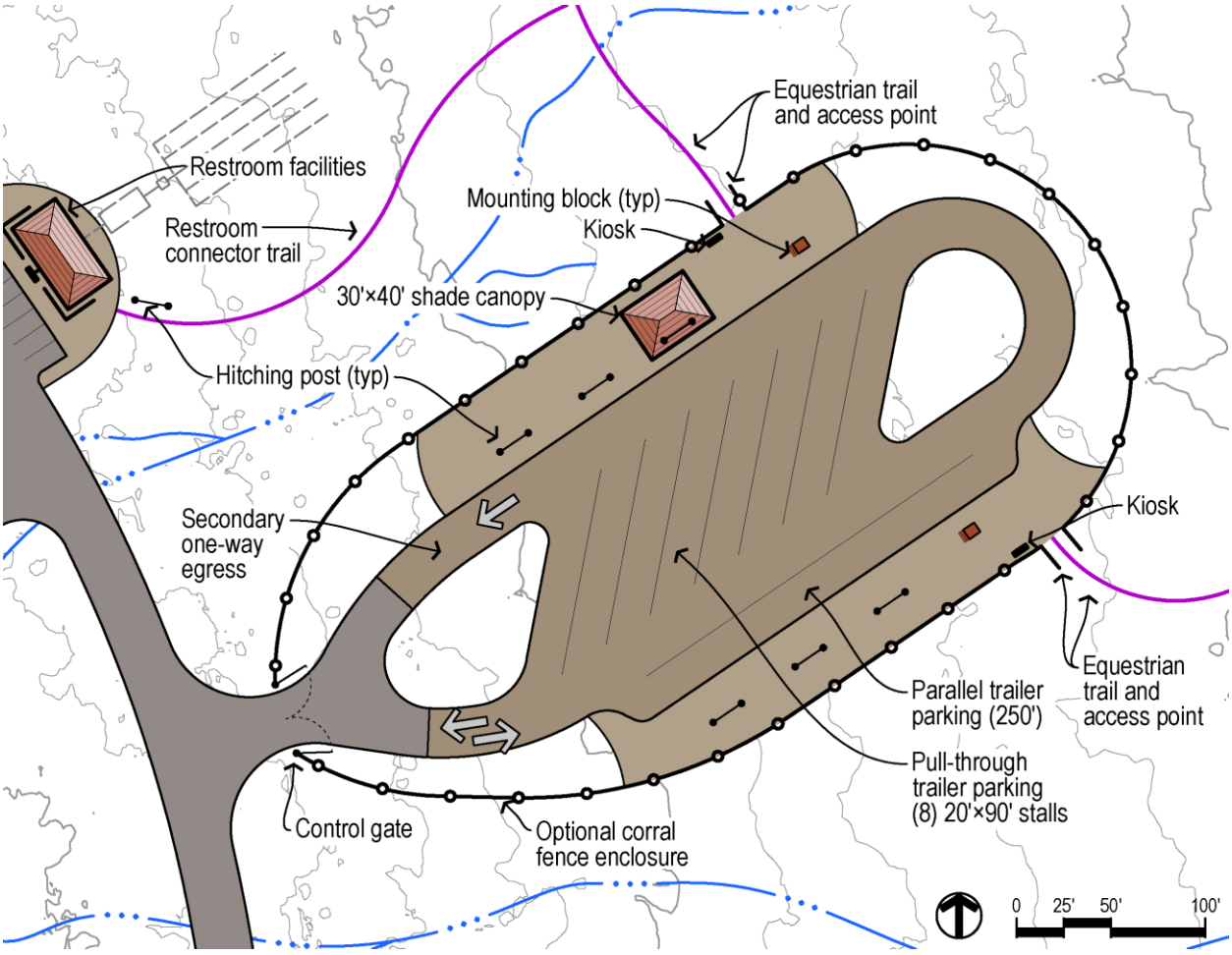

Figure 6. McDavid Road Equestrian Staging Area

2.2.4.3 Restroom Facilities

Description: Restroom facilities will be sited for ease of access from both the trailhead and staging areas. They will consist of a building structure with toilets and a sink in each bathroom for hand washing. It is intended that the County will purchase a packaged restroom building system from a manufacturer who has the capability to provide a building design that blends with the natural setting. There will also be a water jug spigot located outside the restroom building for park visitors to fill their portable water containers. Depending on availability of funds and utilities, the County may initially install vault toilets. These vault toilets would utilize the most current technologies associated with this type of backcountry, waterless waste management system and would be purchased as a packaged system that includes the vault and building structure.

Intended use: The restroom facilities are intended for the comfort of park users and will help reduce the unwanted occurrence of human waste being deposited throughout the site.

Intended users: The restroom facilities will be utilized by park visitors, park personnel, and emergency response staff serving the park.

Design criteria: The restrooms will be provided as a packaged system that will include a building structure, toilets, and hand washing stations. It is intended that water service will be available to the restroom facilities. The County may choose to install the type of waste management system that best meets the needs and constraints of this site with options including low-flow toilets, composting toilets, and vault toilets. A septic leach field will most likely be required at this restroom facility to handle liquid waste. Depending on the anticipated use, the toilets may be single unisex models or separate restrooms for men and women with multiple stalls. If multiple-stall restrooms are installed, at least two stalls shall be ADA-accessible or as required by current ADA standards. If vault toilets are installed, the County would select a vault toilet manufacturer that accommodates design options for the structures to tailor the appearance of the structures to reflect aspects of the park's design theme. Head-in parking will be provided at the restroom facility with at least one ADA-accessible parking space or the number required by the current building code at the time they are installed. It is intended that a water jug spigot will be located at the restroom or integrated into the building design to allow visitors to fill their portable water containers. Automatic shut-offs will be required at sinks and the water jug spigot to prevent water waste.

2.2.4.4 Shade Canopies

Description: Two shade canopies are proposed off the trailhead parking areas, one at the equestrian stating area and one at each host site. The precise locations of the shade canopies may be field adjusted to avoid disturbing specimen trees or cacti, washes, or unique geological formations. The shade canopies will be located near the parking areas for visibility and accessible by an ADA-compliant natural-surface trail.

Intended use: These canopies are intended to provide a staging area for trail users beginning their visit and a shaded respite for those finishing their hikes or rides. It is anticipated that the canopies will be open year-round for park visitors unless the day-use area is closed; these canopies will not be available for overnight use. The shade canopies may include benches for hikers and riders to sit and layout gear, but tables for picnicking are not intended to be the

function of the shaded canopies. The host shade canopies are intended to provide comfortable accommodations for host volunteers.

Intended users: These canopies will be utilized by hikers and riders accessing the trail network as well as the hosts.

Design criteria: The shade canopies should demonstrate an architectural style that is responsive to the desert setting. Specific materials will be selected during design, but raw steel structures when allowed to oxidize will in time blend nicely with the colors of the desert. It is anticipated that the shade canopy at the equestrian staging area will have a minimum vertical clearance of 10 feet so riders can walk dismounted horses underneath. At this canopy, hitching posts will be provided along the southeast face of the canopy parallel to the parking lot edge and 8-foot benches will be placed 16 feet on center along the opposite edge of the canopy. Any path leading from the parking lot to a shade canopy shall not exceed 5 percent longitudinal slope and 2 percent cross-slope and should be a smooth, accessible surface such as ¼-inch minus decomposed granite. The graded areas under the canopies shall be relatively level. Accompanying site furnishings, such as benches, trash receptacles, and hitching posts, shall be chosen to be vandal-resistant, accessible, and durable for many years of use. At least one animal-proof trash receptacle will be located at each shade canopy to encourage clean-up by visitors. Picnic tables, fire rings, and BBQ grills will not be provided.

2.2.4.5 Signage and Monumentation

Description: An entry monument sign will be located near the entrance approach from McDavid Road to showcase the name of the site and its status as a park within the Pinal County Open Space and Trails Department. Rules signage may be located near the entry station, trailheads, and other locations depending on need to clarify park regulations. Wayfinding within the park will require the use of additional signs to direct as well as designate the types of activities intended at each location. Appropriate signage shall be placed throughout the park to provide clarity to users. Locations shall be selected based on need to direct and assist visitors in understanding where facilities and trails may be found. Kiosks will feature information about the site and include interpretive signage about the Sonoran Desert Tortoise habitat in the area. This interpretive signage will educate visitors about the importance of leaving Sonoran Desert Tortoise alone and serve to mitigate impacts that the trails and site development might have on their range and movements.

Intended use: The entry monument will provide visitors with a sense of arrival, serve as a wayfinding landmark, and enable them to identify the responsible jurisdiction overseeing the park. Rules signs will list expectations for park etiquette and applicable County regulations. Directional signs will assist users with finding facilities within the site. Interpretive signage will inform visitors about desert tortoise and other natural features of the Palo Verde Mountains

Intended users: Signage will inform and direct visitors, staff, and emergency personnel.

Design criteria: The entry monument will be located to provide the greatest visibility to those entering the park from McDavid Road. There will be a cohesive design and hierarchy for the signage located within the site. The signage character will be based on the established standards of Pinal County for rural parks. Signs will be located to be highly visible from roads and trails

without obstructing sight lines or passage of people or vehicles. While the area is intended for day use only, use of reflective signage materials may be helpful during times of reduced visibility like dawn and dusk. Up to five kiosks may be located at the two trailhead shade canopies, the restroom, and the two trail access points at the staging area. If the entry station is installed in a future phase, an additional kiosk may be placed near the iron ranger. The kiosk at the restroom may be freestanding or mounted to the southwest restroom building face or privacy screen wall.

2.2.4.6 Multi-Use, Non-Motorized Trails

Description: The trailhead and staging area will link to the Palo Verde Mountains trail network, portions of which occur within this site boundary (see page 68 for more information about the overall trail network). Six named trails occur within the site boundary as well as connecting trails between the restrooms and the shade canopies at the trailhead and staging area (see Figure 7).

Intended use: The onsite trails provide access from the trailhead and staging area to the larger trail system.

Intended users: The trails at this site are intended to be multi-use and non-motorized, providing access to hikers, mountain bikers, and equestrians.

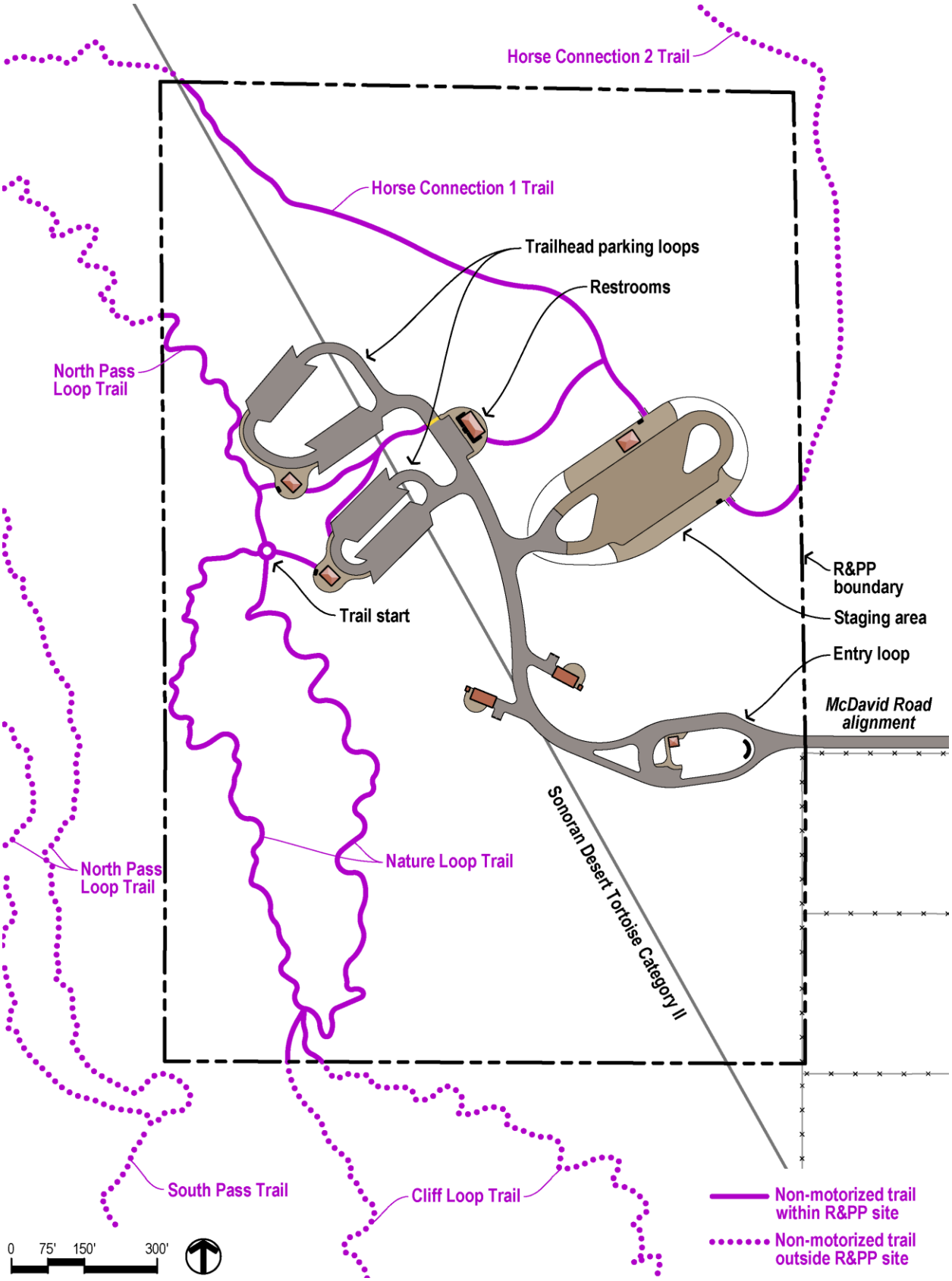

Figure 7. Trails at the McDavid Road Trailhead and Staging Area

Design criteria: The trails at this site will follow the design and use guidelines developed by the County. The named trails are proposed to range from 2 to 5 feet wide and vary in intended difficulty. The trail connections from the trailhead and staging area to this trail network are intended to have a low degree of difficulty. These connector trails will be routed to avoid steep slopes and obstructions and minimize changes in elevation and disturbance to the site. When necessary, trail erosion mitigation and edge treatments will be installed to ensure the stability of these trails and user safety. Therefore, the site impact of the named trails is calculated based on the proposed width plus an additional foot of clearance on each side. The unnamed connector paths to the restroom will be single-track trails from 4 to 8 feet wide; their site impact is calculated at an average 6-foot width with 1 foot of clearance on each side.

2.3 Summary of Site Impacts

The site layout sensitively minimizes the footprint of the proposed facilities to increase users' recreational enjoyment of the site and limit disturbance to natural habitat. The R&PP site boundary shown in red on Figure 1 is approximately 60.59 acres. The proposed facility area shown in green on Figure 1 and by the orange dashed line on Figure 2 is roughly 18.50 acres and is offset an average of 50 to 200 feet beyond the footprint of the site facilities. It includes washes and natural areas that are not intended to be disturbed by the proposed facilities or their construction. The roadway and facility layout proposed will impact approximately 9.47 acres of the site, as totaled in Table 3, which equates to 51 percent of the facility area and 16 percent of the R&PP site boundary. Of the 9.47 developed acres, 2.39 acres occur within Category II Sonoran Desert Tortoise habitat. The acres of disturbance for named trails within Category II Sonoran Desert Tortoise habitat are calculated separately in Section 5.

2.3.1 Roadway Impacts

The proposed roadways have been laid out in CAD on the base topography available. The objective of the roadway design is to lay lightly on the site. The vertical road alignments are responsive to the general slope conditions of the natural grade, which is relatively flat. The worst-case road grades anticipated based on this current alignment are at a 3 percent grade.

The combined length of the proposed internal roadway, entry loop, trailhead parking loop aisles, and staging area drive aisles are approximately 0.84 mile in length. These drives are on undisturbed natural areas. Their site impact width is calculated as the drive width plus 6 feet on both roadway edges to be used for construction purposes and tying in roadway shoulders to existing grade as needed. The proposed offsite improvements along the McDavid Road alignment total approximately 0.48 mile, of which approximately 0.25 mile follow existing two-track roads. These two-track roads have already created a disturbance to the natural site condition. For the purpose of this evaluation, we have calculated the additional impact to these two-track roads as a 15-foot wide cross section to factor in the existing disturbance. In summary, 0.23 miles (18 percent) of the proposed park roads will occur on existing two-track roads and 1.09 miles (82 percent) of the proposed roads will be graded on previously undisturbed site conditions, representing approximately 5.09 acres of disturbance.

2.3.2 Facility Impacts

The park facilities have also been developed as CAD drawings to depict the general layout being considered for each of these facilities. Once the configuration of the facilities was designed, a 4-foot envelope was applied along the outside perimeter and added to the square footage of the facilities to allow for potential impact to the site for construction purposes. Additional disturbance already applied to the roadways adjacent to these facilities are not included in the areas shown in the summary table below. The areas shown below are defined in both square feet and acres of impact for each facility. The combined area of impact from the park facilities and trails at the McDavid Road Trailhead and Staging Area site is approximately 4.38 acres.

Table 3. Summary of McDavid Road Trailhead and Staging Area Site Impacts

	Dimensions (in feet)		Area	
Facility	**Width**	**Length**	**Square Feet**	**Acres**
McDavid Road (offsite previously disturbed)	15	1,225	18,375	0.4218
McDavid Road (offsite undisturbed)	37	1,313	48,581	1.1153
Entry loop with parking		1,025	32,004	0.7347
Internal roadway	37	1,189	43,993	1.0099
Trailhead parking south loop aisle	34	596	20,264	0.4652
Trailhead parking south loop bays			13,979	0.3209
Trailhead parking north loop aisle	34	783	26,622	0.6112
Trailhead parking north loop bays			13,066	0.3000
Restroom parking	20	99	1,980	0.0455
Staging area drive aisle	37	859	31,783	0.7296
Staging area parking bays			20,000	0.4591
Staging area corral areas			23,894	0.5485
Onsite water services*	6	750	4,500	0.1033
Onsite electric services*	6	750	4,500	0.1033
Septic systems/leach fields			14,450	0.3317
Host camp site A			5,333	0.1224
Host camp site B			5,333	0.1224
Entry station and walkway			1,708	0.0392
Restroom facilities			4,743	0.1089
Shade canopy and graded access at south loop			4,431	0.1017
Shade canopy and graded access at north loop			5,309	0.1219
Entry monument/signage			300	0.0069
Wire-strand fencing/barrier	4	831	3,324	0.0763
Wire-strand fencing/barrier (offsite)	4	4,909	19,636	0.4508
Corral fencing	4	1,226	4,904	0.1126
Multi-use trails	4	680	2,720	0.0624

Table 3. Summary of McDavid Road Trailhead and Staging Area Site Impacts

Facility	Dimensions (in feet)		Area	
	Width	Length	Square Feet	Acres
Multi-use trails	5	1,425	7,125	0.1636
Multi-use trails	6	245	1,470	0.0337
Multi-use trails	7	2,935	20,545	0.4716
Multi-use trail connections	8	930	7,440	0.1708
Total Area of Impact			**412,312**	**9.4654**

**Utility data is still under research and the quantities for these improvements are approximate. Most onsite disturbance will occur within the drive disturbance footprint already accounted for; the linear feet listed represent lengths likely required beyond drive disturbance.*

2.4 Cost Evaluation

Development of this R&PP site may be divided into subphases, depending on the availability of funding and existing infrastructure at the time of construction. The site plan for this area is intended to layout facilities on existing grade and balance any minor cut and fill earthwork required. The following order-of-magnitude cost evaluation below represents projected costs of full build out of the proposed site plan based on current construction costs and will need to be reevaluated at the time of construction. This cost evaluation represents expected construction and design costs for full build out of the proposed site plan and does not include the land acquisition costs for McDavid Road right-of-way.

Table 4. McDavid Road Trailhead and Staging Area Order-of-Magnitude Cost Evaluation

Construction Expenses	Unit	Quantity	Unit Cost	Total
Mobilization	LS	1	$30,000.00	$30,000.00
Clear and grub	LS	1	$20,000.00	$20,000.00
Earthwork	LS	1	$125,000.00	$125,000.00
SWPPP/dust control	LS	1	$25,000.00	$25,000.00
Construction surveying/staking	LS	1	$20,000.00	$20,000.00
Traffic control	LS	1	$3,500.00	$3,500.00
Vegetation slash stockpile	LS	1	$5,000.00	$5,000.00
Vegetation salvage (cacti)	AL	1	$4,000.00	$4,000.00
McDavid Road (offsite roadway)	LF	2,538	$50.00	$126,900.00
McDavid Road (offsite water service)	AL-LF	2,538	$65.00	$164,970.00
McDavid Road (offsite electric service)	AL-LF	2,538	$55.00	$139,590.00
Onsite water service	AL-LF	1,565	$65.00	$101,725.00
Onsite electric service	AL-LF	1,565	$55.00	$86,075.00
Booster pump station	AL	1	$20,000.00	$20,000.00
Asphalt pavement section (onsite)	SF	123,355	$10.00	$1,233,550.00

Table 4. McDavid Road Trailhead and Staging Area Order-of-Magnitude Cost Evaluation

Construction Expenses	Unit	Quantity	Unit Cost	Total
Graded roadbed with gravel surface	SF	45,095	$7.00	$315,665.00
Shoulder fine grading	LF	11,804	$2.00	$23,608.00
¼" minus stabilized DG	SF	42,441	$2.00	$84,882.00
Multi-use paths	LF	6,215	$4.00	$24,860.00
Restroom/septic system	EA	1	$250,000.00	$250,000.00
Entry station	EA	1	$25,000.00	$25,000.00
Shade canopy, 30'×40'	EA	1	$45,000.00	$45,000.00
Shade canopy, 25'×35'	EA	2	$35,000.00	$70,000.00
Host shade canopy, 24'×50'	EA	2	$50,000.00	$100,000.00
Host utility hookups and septic systems	EA	2	$5,000.00	$10,000.00
Storage shed (for hosts)	EA	2	$3,200.00	$6,400.00
Picnic table (for hosts)	EA	2	$2,000.00	$4,000.00
Fire ring (for hosts)	EA	2	$650.00	$1,300.00
Litter receptacle	EA	8	$850.00	$6,800.00
Jug filler	EA	2	$4,000.00	$8,000.00
Mounting blocks	EA	2	$3,000.00	$6,000.00
Hitching posts	EA	7	$550.00	$3,850.00
Benches	EA	20	$550.00	$11,000.00
Control gates	EA	3	$4,500.00	$13,500.00
Pavement striping and marking	LS	1	$5,000.00	$5,000.00
Wheel stops	EA	123	$400.00	$49,200.00
Entry monument	LS	1	$8,000.00	$8,000.00
Signage	AL	1	$10,000.00	$10,000.00
Kiosks	EA	5	$4,500.00	$22,500.00
Wire-strand fencing	LF	5,740	$6.00	$34,440.00
Corral fencing	LF	1,226	$40.00	$49,040.00
Construction Expenses Subtotal				**$3,293,355.00**

Administrative Expenses	Percent	Total
Agency Costs and Coordination	6%	$197,601.30
Design/Approvals/Inspections	14%	$461,069.70
Permits, Taxes, Bond, Insurance	10%	$329,335.50
Contingency	25%	$823,338.75
Administrative Expenses Subtotal		$1,811,345.25
Total Cost		$5,104,700.25

Table 5. McDavid Road Trailhead and Staging Area Annual Projected Cost Escalation

Construction Year	Percent	Total
2021 – 5% escalation	5%	$5,359,935.26
2022 – 5% escalation	5%	$5,627,932.03
2023 – 5% escalation	5%	$5,909,328.63
2024 – 5% escalation	5%	$6,204,795.06
2025 – 5% escalation	5%	$6,515,034.81

3. Farrell Road Trailhead and Campground

3.1 Proposed Program and Design

The program for the Farrell Road Trailhead and Campground includes active recreation with an archery range as well as passive recreation with overnight camping and day-use trailhead facilities. The program for the archery facility serves both shooting practice and regional competitions. The range accommodates up to 295-foot (90-meter) targets, and shaded shooting stations will be provided. This range utilizes an existing excavated borrow pit, and the slopes of this pit provide a buffer for adjacent residences. Grading modifications are proposed around the perimeter of the archery range to accommodate stormwater flows.

The trailhead provides restrooms, shaded picnic areas, and parking, as well as access to the Palo Verde Mountains trail network. Opportunities for overnight camping will permit visitors to enjoy the park for several days. The individual camping sites along the loop drives accommodate both tent and RV users, and a group camping site is also provided. Multiple restrooms serve these camping areas. In addition to the four host sites proposed at this site for the trailhead and camping operations, a County maintenance yard is proposed to oversee the maintenance and operations of all three recreations sites as well as the Palo Verde Mountains trail network. Access to this site will be controlled, and fees for using the trailhead, campground, and archery amenities will be collected by a pay attendant. A future RV sewage dump station may be provided in the future if access to a sanitary sewer system becomes available or if the County makes other arrangements to haul the waste offsite.

3.2 Proposed Infrastructure and Facilities

The various improvements proposed for this site are grouped into the following categories: roadway system, utilities and site operations, perimeter treatments, and park facilities.

3.2.1 Vehicular Access

The hierarchy of roads includes the public roadway of Farrell Road leading to the trailhead and campground entrance, the entry point to the site, the internal drives, the vehicular parking areas serving the facilities, and the secondary/emergency exit at the Pima Road alignment. These roadways will require natural drainage crossings to maintain existing flow patterns on the site. An in-depth description of each type of roadway, along with the proposed use, users, and design criteria, is discussed below.

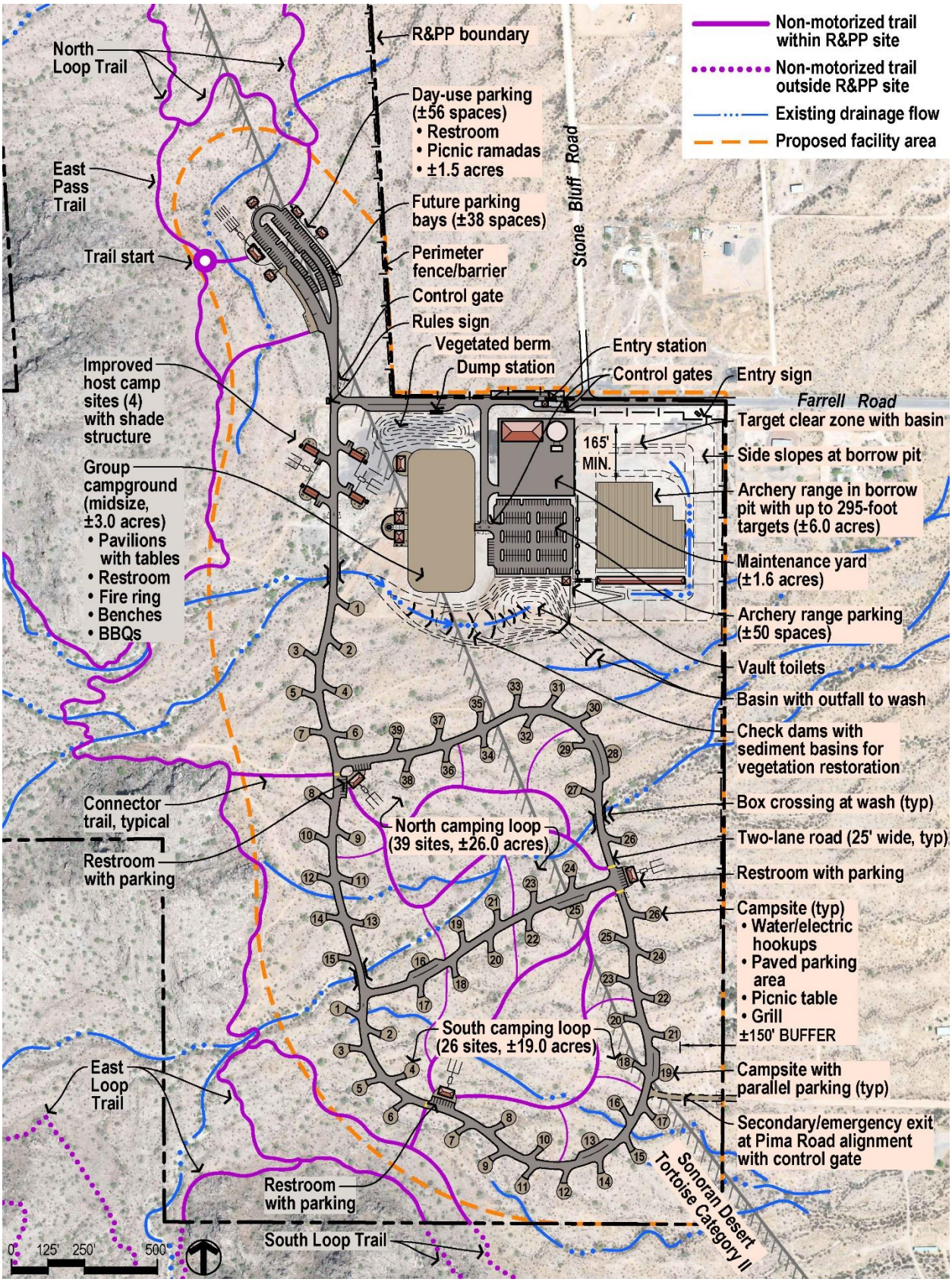

Figure 8. Farrell Road Trailhead and Campground

3.2.1.1 Offsite Roadway Improvements to Farrell Road

Description: The portion of roadway being referred to in this section occurs outside of the BLM land being evaluated. The roadway is an existing improved roadway already in use so new offsite roadway construction is not anticipated for the development of the Farrell Road recreation site. The current pavement treatment for Farrell Road near the park's entry access is a two-way, chip-sealed paved surface. This roadway surface has proven to be effective for addressing existing residential traffic in the local neighborhood, and it has also held up to the use of County vehicles that have hauled materials from the borrow pit. During the park's initial construction activities and even after some initial park facilities are made available to the public, it is anticipated that the Farrell Road profile and surface will be able to serve this facility with the application of standard chip seal roadway maintenance. In the future once the full range of the park facilities are built out, the increased traffic in the area may merit additional roadway improvements to establish a more durable pavement/subgrade treatment and perhaps improvements to the shoulder drainage system. These upgrades will be contingent on the usage of the park, the input of the local residents, and the County's standards for roadway improvements and maintenance.

Intended use: The roadway is currently in use by the residents who live in the area along with County service vehicles accessing the borrow pit. Farrell Road will serve as the primary public access road for those who wish to visit the recreational facilities at this site.

Intended users: The current local residential users will still have access to the travel routes they currently have. The future users of this segment of the roadway will be the general public who visit to use the facilities within the park. This will include hikers parking at the trailhead, archers using the archery facility, and RV or tent campers staying overnight at the individual or group campgrounds. Other users will include County personnel responsible for the maintenance and security of the park.

Design criteria: The current roadway conditions are suitable for the initial access and development of the park. It is anticipated that standard roadway maintenance for a chip-seal surface roadway will be a part of the County's practice. Future improvements may occur. Improvements to the roadway could occur if underground utilities are extended to the site or the increased roadway usage from park patrons demonstrate the need to improve the roadway to a more durable and safer roadway treatment. If roadway improvements are deemed necessary, that may also include the evaluation of the roadway width and if sufficient right-of-way is available. This roadway occurs in a rural setting, and any roadway improvements will likely stay within that character and will also be subject to public input. A fully improved roadway with asphalt pavement, curb, gutters, and concrete sidewalks are not envisioned. An improved pavement surface with graded shoulders and effective shoulder drainage treatment could be the level of improvement needed in the future. The inclusion of a bike lane along Farrell Road leading to the park may also be considered as a part of the County's future transportation plan. Again, these possible roadway improvements occur outside of the BLM land and will not impact environs within this site boundary.

3.2.1.2 Site Entrance

Description: The primary entrance to this site aligns with Farrell Road and serves as an extension of the offsite roadway improvements. This entry drive mostly follows the alignment of

the existing access road to the borrow pit onsite. In lieu of a turnaround loop, visitors may turn on Stone Bluff Road if they approach the site entrance and see that the gates are closed.

Intended use: This primary entry will serve as the primary ingress and egress for all public vehicles entering the park and as the control point for park access. This entry will accommodate both patrons and service staff regardless of their intended functions within the park, including recreational and service activities.

Intended users: The primary users will be members of the public who intend to use any of the recreational activities available within the park. Users also include service and maintenance staff employed by the County who have operational activities to perform as well as emergency and patrol service providers.

Design criteria: The entry drive will be sized to meet the requirements of the local transportation standards for the intended uses within the park as specified by Pinal County. Traffic is anticipated to include cars, pickup trucks, RVs, vehicles towing equestrian trailers, and school buses. The surface condition of this roadway may be chip-sealed graded roadbed initially and then later paved with asphalt as a phased improvement. The eastbound egress lane will separate from the westbound ingress lane to route around the entry station, forming a median.

3.2.1.3 Internal Roadways

Description: The proposed internal roadways are intended to allow vehicular access from Farrell Road to the recreational amenities within the site. The vehicular drives will be two-way, providing one lane to travel in each direction.

Intended use: The internal roadways will provide a direct vehicular connection between the Farrell Road entrance and the parking areas for the trailhead and staging facilities. This roadway will also provide access to the host sites.

Intended users: The internal roadway is intended to be utilized by park visitors as well as park staff and emergency personnel.

Design criteria: The internal road will accommodate vehicular traffic consisting of standard passenger vehicles, pick-up trucks pulling trailers, RVs, school buses, maintenance vehicles, and emergency response vehicles. The road alignment and design are intended to promote safe driving practices. The posted speed limit is anticipated to be around 10 to 15 miles per hour or as designated by the County. Several T-intersections occur on the site. The first T-intersection occurs west of the entry station to connect to the group camping and archery range to the south. Here, the northbound traffic will stop and yield to traffic on the east-west entry drive. The second T-intersection will be located where the north-south drive connecting the trailhead and camping areas intersects with the drive at the Farrell Road alignment. This intersection is anticipated to be signed as a three-way stop and feature way-finding signage for visitors. Three additional T-intersections occur within the camping loops. The road surface may be chip-sealed graded roadbed initially and then later paved with asphalt as a phased improvement. The two-lane roadway will be 25 feet wide with 12.5 feet of driving width each direction and a 4-foot shoulder on each side. The shoulders will be graded to direct drainage flows away from the roads. It is not

anticipated that the roadway will be striped. The designed width will allow a vehicle to pass another disabled vehicle when necessary.

3.2.1.4 Secondary/Emergency Exit

Description: This site includes an emergency exit along the Pima Road alignment in the event that egress from the site at the primary entrance off of Farrell Road becomes inaccessible. This road will remain closed with a vehicular swing gate at the site perimeter unless opened by maintenance staff or emergency personnel via a Knox Box.

Intended use: This access road is intended to support safe egress from the site in emergency situations.

Intended users: This access road is intended to be used primarily by emergency personnel and maintenance staff, but it may be used by the public for evacuation purposes.

Design criteria: The road is intended to be a chip-sealed graded roadbed surface approximately 20 feet wide to align with an existing dirt road along the Pima Road alignment between two existing residential property fences. This secondary road will need to accommodate standard passenger vehicles, pick-up trucks pulling trailers, RVs, school buses, maintenance vehicles, and emergency response vehicles.

3.2.1.5 Wash Crossings

Description: The roadways will be designed to accommodate drainage washes that occur through the site. Roadway alignments have been located to avoid as many crossings as possible; where the flow of water over the roadway is minor, a dip crossing is proposed. However, it is anticipated there will be three locations where culvert crossings may be required. The culverted crossings will be required to access both the north and south campground loops during storm events from the internal park roadway after turning south from the T-intersection. The first roadway drainage crossing occurs south of the proposed host sites. East of this crossing, additional earthwork will be required to restore the drainage pattern interrupted by the existing borrow pit in the area where the group campground, maintenance yard, and archery range are proposed. Here, check dams with sediment basins are proposed to capture run-off from the Palo Verde Mountains and facilitate vegetation restoration in this disturbed area. The other two roadway drainage crossings occur north of the road that bisects the camping loop.

Intended use: The culverted drainage crossings allow for safe access to the camping area during storm events.

Intended users: Visitors using these crossings will be in passenger vehicles, pick-up trucks pulling trailers, RVs, and buses that may not otherwise be able to safely cross these washes when flowing. Other maintenance vehicles will also need to cross these washes, including park service vehicles, waste management vehicles, and construction equipment required to expand the camping loop as well as maintain the roadways over time.

Design criteria: The culverted crossings will be engineered to accommodate the typical flows anticipated. They will be constructed of reinforced concrete or pipe(s) and reinforced concrete. They will also meet the load requirements of the largest anticipated vehicle which will most

likely be waste management trucks. The roadway width at these crossings will be wider than the standard 26-foot wide roadway within the park in order to accommodate the design of the culvert. In areas with smaller crossings not requiring a culvert, dip crossings are anticipated to be designed into the roadway vertical alignment. This simple design will contain and direct the natural flow of water over the roadway. Rip rap will be provided on both sides of the crossing to minimize erosion of the roadway base and help maintain the roads integrity. For both culverted and dip crossings, permanent depth markers will be located on both sides of the roadway to provide enhanced safety measures for park visitors.

3.2.2 Utilities and Site Operations

Site utilities for water, electric, and septic systems are discussed, as well as the operational needs for this site in terms of host accommodations and trash collection and for the park as a whole in terms of maintenance.

3.2.2.1 Utility Services

Description: Currently, there are no utilities available at this site. It is anticipated that potable water and electric service will be delivered to the site for use at all the restrooms, the individual and group campsites, the maintenance yard, the host sites, and the entry station. While these utilities may be available from possible existing services along Farrell Road, it is possible that water will be provided from an onsite well located at the maintenance facility. Sewer and communication lines are not intended to be developed at this site at this time. Sewer lines may be extended to this site in the future to serve a possible RV dump station as the site develops and funding becomes available. The campground and trailhead restrooms and host sites will be designed with septic systems and leach fields.

Intended use: At the individual and group campsites, electric service will connect to RV generators, which will supply power for uses such as lighting, heating and cooling, and cooking. Potable water hookups for these campsites will provide safe drinking water and serve plumbing needs for sinks and toilets. At the restroom facilities, water use includes plumbing for showers, toilets, sinks, drinking fountains, and personal jug fillers. This potable water will provide a safe method of hand washing and showering as well as drinking water for day-use visitors, campers, and their pets. The restrooms will also have electric service for hand dryers and security lighting. Water and electricity will be provided at the maintenance yard for cleaning and disinfecting equipment and general park maintenance needs. The entry station may be equipped with electricity for heating and cooling or to power office equipment such as a laptop. Each host site will have a single hose spigot for water hookup to an RV as well as an RV electrical hookup. Septic systems will be provided for restrooms and host sites.

Intended users: The main users of the water and electric services as well as the septic systems are intended to be day-use visitors, campers, archery range users, hosts, and maintenance and administrative staff.

Design criteria: The existing utility connections are located within the right-of-way and easements along Farrell Road. These water and power connections will be located underground. Outdoor water spigots for water bottle filling will be elevated to provide a level of comfort for users and will be designed to be vandal resistant. A concrete pad will be located around each water jug filler spigot to reduce muddy surroundings and will be sloped away from traffic paths.

Furthermore, an auto shut-off valve will be installed at each jug-filling location to minimize wasted water if the spigot is accidentally left open. Bathroom lavatories will also be equipped with automatically timed faucets and low-flow showerheads and toilets to minimize water waste.

3.2.2.2 Maintenance Facility

Description: There is a 1.6-acre maintenance yard included in this park that will be enclosed and will serve as the maintenance hub for County staff to be available for all three proposed recreational areas planned for Palo Verde Regional Park. The outer perimeter of the yard will be defined with an 8-foot-tall decorative masonry wall that will screen the maintenance yard facilities and will also offer security for what is kept in the compound. There will be a rolling gate that will be wide enough to allow service vehicle entry into the compound and to also secure the area when closed. The design program for this yard will adjust as the various phases of the park are implemented. Ultimately, within the compound there will be a water storage tank and possibly a well that will provide water service to the compound and the campsites. This well may supply the trailhead restrooms as well with the assistance of a booster pump to supply water uphill to this location. There will be a maintenance building that will have a portion of the building for staff to use as office and meeting space. This area will have restrooms and possibly showers for the maintenance staff. It is anticipated that trash collection from receptacles at the three R&PP sites will be stored at this facility so regularly scheduled trash pickup for the park can occur at a single location. There will also be several service bays available to accommodate maintenance on the park vehicles. The remainder of the yard will be treated with gravel and eventually paved but will be open to allow for material storage and vehicular parking for the park's service vehicles.

Intended use: The maintenance yard will be used by the County to establish a base site within the park to provide maintenance to the developed areas of the park. It is expected that the County will accommodate the maintenance needs of the Table Top Road OHV Area, the McDavid Road Trailhead and Staging Area, and the Farrell Road Trailhead and Campground from this maintenance compound. Eventually, there may be a well added within this compound that would also have a water storage tank to address the water demands of the Farrell Road campsite facilities.

Intended users: This facility will be available for County staff, including park maintenance personnel, site hosts, and County police or park rangers. This is a service facility for the park and will not be open to the general public.

Design criteria: This facility is proposed to occur in an area already disturbed as a part of the exiting borrow pit excavation work. The area is not in the pit, but the surface has been scrapped. The approximate size of the compound will be 1.6 acres and is in a rectangular configuration. There will be a perimeter wall and a rolling gate to provide access into the compound. The interior area of the compound will be graded nearly level but with a sloped condition to enable drainage away from the facility. The majority of the interior area will be gravel or asphalt pavement. There will be material bays and storage bins to contain materials need for park maintenance. An air-conditioned maintenance building will be provided to serve as an office area and respite for the park staff. Typical convenience facilities will be included such as lockers, lunchroom, restroom, and small meeting room. There may also be some office space provided for park managers and possibly for police or park rangers. There will also be service bays that

will provide some level of shade and perhaps swamp cooling for those who will use this area as a shop or repair garage for the maintenance of park equipment and vehicles. Eventually there could be a well located within this compound and, along with that, an associated pump system and storage tank suitable to meet the limited needs of the Farrell Road facilities.

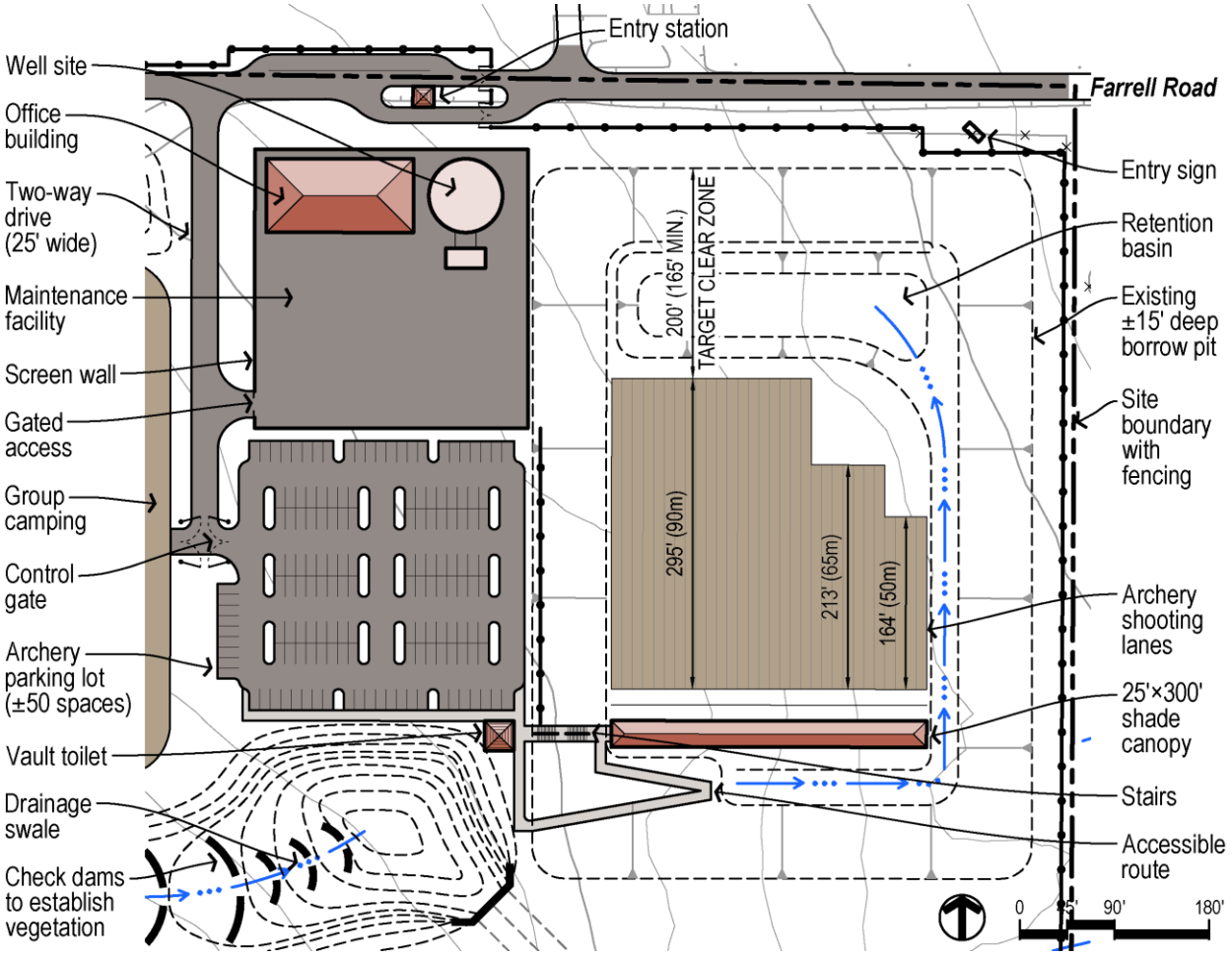

Figure 9. Maintenance Facility and Archery Range

3.2.2.3 Host Camp Sites

Description: The County will provide four host sites for employed hosts to serve as the public liaisons for the park. While serving as the park's ambassadors, these hosts will also be the eyes and ears for the County regarding the activities that occur within the park. Additionally, the host will have several daily maintenance tasks to perform, such as securing control gates as needed, removing trash and placing it in the collection dumpster(s) at the maintenance yard, cleaning restrooms, and maintaining the park facilities in a clean and orderly manner.

Intended use: Each host site will be a permanent location with facilities intended to improve the level of comfort for the hosts and accommodate the setup of their RVs. This site will serve as their place of residence while they are performing their host duties.

Intended users: Each host site will serve an individual or couple who use this site as their residence while fulfilling their obligations as a park host.

Design criteria: The host sites are located where they are visible to the public but also provide a level of privacy for the hosts. The elements needed for each host site include a driveway, an RV parking area long enough to accommodate up to 50 feet in length, two additional parking bays for vehicles, a patio area, a storage shed, and a shade canopy for the RV and patio (see Figure 4). There will be water and electric RV hookups. A hook-up will also be available for connection to a small septic tank with a leach field; this septic system will be limited to use by the host. The specific engineering for the leaching area will be developed following the testing of the soil percolation rates with in the area of the proposed leach field. A fence line may be needed to separate the host's entry drive from the leach field to avoid any vehicular access onto the leach field area that may jeopardize the effectiveness of the field.

3.2.2.4 Trash Receptacles

Description: Heavy-duty, animal-resistant trash receptacles are intended to be located at key use areas throughout the site, such as restrooms, the group campground, individual campsites, shaded picnic areas, the archery range, and host sites. These trash stations will be relatively convenient to encourage the public to place their trash at these locations and hopefully help reduce site litter.

Intended use: Individuals visiting the park can deposit their day use trash at these locations. Collection from these trash containers will be by County park staff using a vehicle to collect the trash from these individual trash stations and then placing that trash in an appropriately sized dumpster for pickup by a front load refuge truck. The dumpster will be located in a designated maintenance area.

Intended users: The intended users are day-use and overnight park visitors as well as staff.

Design criteria: The trash collection stations will be composed of heavy-duty metal trash receptacles specifically designed to be animal resistant (specifically designated as bear proof). The lids for these units are integral to the receptacle and hinged to facilitate easy use without requiring lid removal. The receptacles will accept plastic liners to facilitate the bagging of the trash when it is collected from these containers. The trash units will be placed in areas that are convenient for users and where they would most likely want to unload their trash. Since all of the roads that service park facilities are two lanes, the need for a widened parallel vehicular pull-off lane for trash stations is not anticipated. There should be adequate room for patrons to drive around a service vehicle when staff is collecting trash.

3.2.2.5 Dump Station

Description: As a possible future facility, the County may provide an RV dump station near the primary site egress to provide campers a convenient location to safely and responsibly offload their holding tanks upon leaving the site at the end of their stay. This facility would need to be developed to County standards and may require a separate fee portion for those who choose to use it. The layout would be a roadside pull off that would enable RVs to be out of the traffic flow of the park's exit lane. Users would be able to extend a hose from their RVs to an inground port that allows the waste to be discharged into a sealed storage tank. Eventually, this system may be tied into a sewer line, but initially the storage tank would be sized to accommodate a reasonable capacity, and the County would contract an outside service to pump out the tank and properly dispose of the waste on a regular or as-needed basis.

Intended use: This facility is intended to provide RV campers who paid to use the County facility at Farrell Road Campground with a convenient location to offload their sewage rather than look for a separate private offsite dump station facility or discharge their waste into their home sewage cleanout.

Intended users: The intended users will be overnight RV campers from the individual and group campsites located at this park site. This is not intended to serve the public beyond those onsite campers.

Design criteria: The layout of the dump station will consist of a one way pull through roadway that is separated from the exit lane of the park. Along the pull-off loop, there will be two parking stalls for an RV to park at while they unload their waste. The port where the waste will be unloaded will be conveniently located to the side of the RV parking stall. The port will be centered within a concrete apron that slopes toward the port/drain so in the event of spillage or wash down maintenance the waste will drain into the system. The discharge port is connected to an underground sealed storage tank. The storage tank will be a premanufactured tank suitable for this purpose. The tank will be fitted with an exit port where the County can access the waste with a pump and tanker truck. The waste will be stored in the tank until it is appropriate for the county maintenance staff or a vendor to pump out the tank and then legally discharge the waste off-site. A clean water source will also be available at each dump port so that the users will have the ability to hose down their discharge line and spray off the area in the event there was any spillage. In the future, the dump station may be connected to a sewer line if one becomes available in the adjacent residential area that would allow the park to tie into that system.

3.2.3 Perimeter Treatments

3.2.3.1 Entry Station

Description: The entry station is intended to provide a sheltered space for County staff to welcome park visitors, provide park information, and collect user fees. Depending on availability of funds, the entry station may initially be installed as a signage kiosk with a self-pay iron ranger, which is a metal box that grants authorized access permits by depositing a fee (see page 58 for more information about iron rangers).

Intended use: The entry station provides a welcoming point for County staff to interact with users to answer questions and collect day-use fees, if applicable.

Intended users: The intended users will be County staff manning the station and park visitors.

Design criteria: The entry station may be installed as a prefabricated unit per the manufacturer's instructions. The building and its color palette should be selected to complement the natural desert setting and other site structures, including the restroom facilities and shade canopies.

3.2.3.2 Fencing

Description: This site features a wire-strand barrier fence from the north perimeter at the Bowlin Road alignment and along the eastern perimeters where residential fencing does not already occur. This fence would extend beyond the southern boundary line of the R&PP parcel to connect with the planned perimeter fencing for the future shooting range near the Steen Road alignment. It is intended that the Pinal County Open Space and Trails Department will be

responsible for installing and maintaining this fencing. As needed, the County may supplement this fencing with the installation of large boulders, cacti, or downed tree limbs to deter access to areas of the site.

Intended use: The fencing delineates the site entrance and deters undesired traffic into the site.

Intended users: While the fencing is not intended to be used as an amenity by visitors, it helps the County maintain access to and within the site. As a secondary use, the fencing serves as a wayfinding feature for visitors.

Design criteria: The wire-strand fencing will consist of steel fence posts and four rows of stranded wire. The top three strands will be barbed wire while the bottom row will be barbless in order to permit free ingress and egress for wildlife. All steel will be untreated and allowed to oxidize naturally in keeping with the rural and natural character of the surroundings and to minimize the visual impact of the fencing. If boulders are added as barriers, they should be large enough as to not be easily moved either by human force or with the assistance of a vehicle. At least the bottom third of the boulder should be buried during installation to reduce the ease of moving them out of place.

3.2.3.3 Control Gates

Description: Double-wide control gates will be installed at the site entrance, secondary/ emergency exit, trailhead entrance, camping loop entrance, group campground, archery range, and the two intersections between the north and south camping loops.

Intended use: These gates will restrict access to the site and facilities after park hours and during temporary facility closures.

Intended users: It is intended that the Pinal County Open Space and Trails Department will be responsible for operating and maintaining gated access points into and within the site to communicate closures to park users.

Design criteria: The gates will be simple double-leaf barrier gate arms made from galvanized steel that can be closed and locked when required to prevent unwanted access. A Knox Box will be provided at each gate for emergency personnel access as well as park staff. The gates will have night vision marking tape for enhanced visibility at night.

3.2.4 Facilities

3.2.4.1 Overnight Campground

Description: This area will offer single-site overnight camping spaces along a looped road bisected with a connector road in the middle to form a north loop road and a south loop road. It is anticipated that the north camping loop road and sites may be developed first and that the south loop road and sites may be added on in the future depending on public interest and availability of funds. The individual camping sites will each have hook ups for water and electric service.

Intended use: All camp sites will be available to visitors with tents, pop-up campers, small trailers, or motorhomes. It is anticipated that these sites will be available to the public via a

purchased permit allowing for overnight stays for a set length of time. The County will determine the maximum length of stay for visitors as well as check-in and check-out times.

Intended users: The overnight campsites will be used by visitors to the Palo Verde Mountains who wish to stay for multiple days in either RV, trailer, or tent accommodations. Camp sites will be available on a first-come, first-serve basis. County staff will be responsible for updating which sites are available each day and making that information available to the public.

Design criteria: Each site will be improved to provide a level space as a tent pad. Amenities will include a fire ring with a cleared area around the ring and a concrete picnic table. Several sites will be designed to be ADA-compliant, including an accessible picnic table. These sites will be designated as accessible on a map of the camp sites at the park entrance so visitors can use that information when selecting their camp site number. An inert mulch will be placed as a ground cover to define the site's limits and to minimize erosion. Each site will be laid out to fit the natural setting. They will be placed where a minimum amount of grading will be needed to create a level site. The sites will be arranged within a designated area but are shown spaced approximately 145 feet to allow the campers to have a sense of separation and privacy. The majority of campsite parking areas will be placed at an angle to the road to comfortably facilitate visitors in RVs or trailers backing into the space. The parking area will be approximately 50 feet in length and 24 feet wide to accommodate one camper or RV and one passenger vehicle. Selected sites will be designed to allow visitors to pull aside rather than back in. The distance from the parking space to the campsite will vary but will typically be a short walk of 20 yards or less. Where campsites can accommodate a small group with two tent pads, these sites may include two parking spaces. An animal-proof trash receptacle and a precast concrete marker with the campsite number will be located near the loop road.

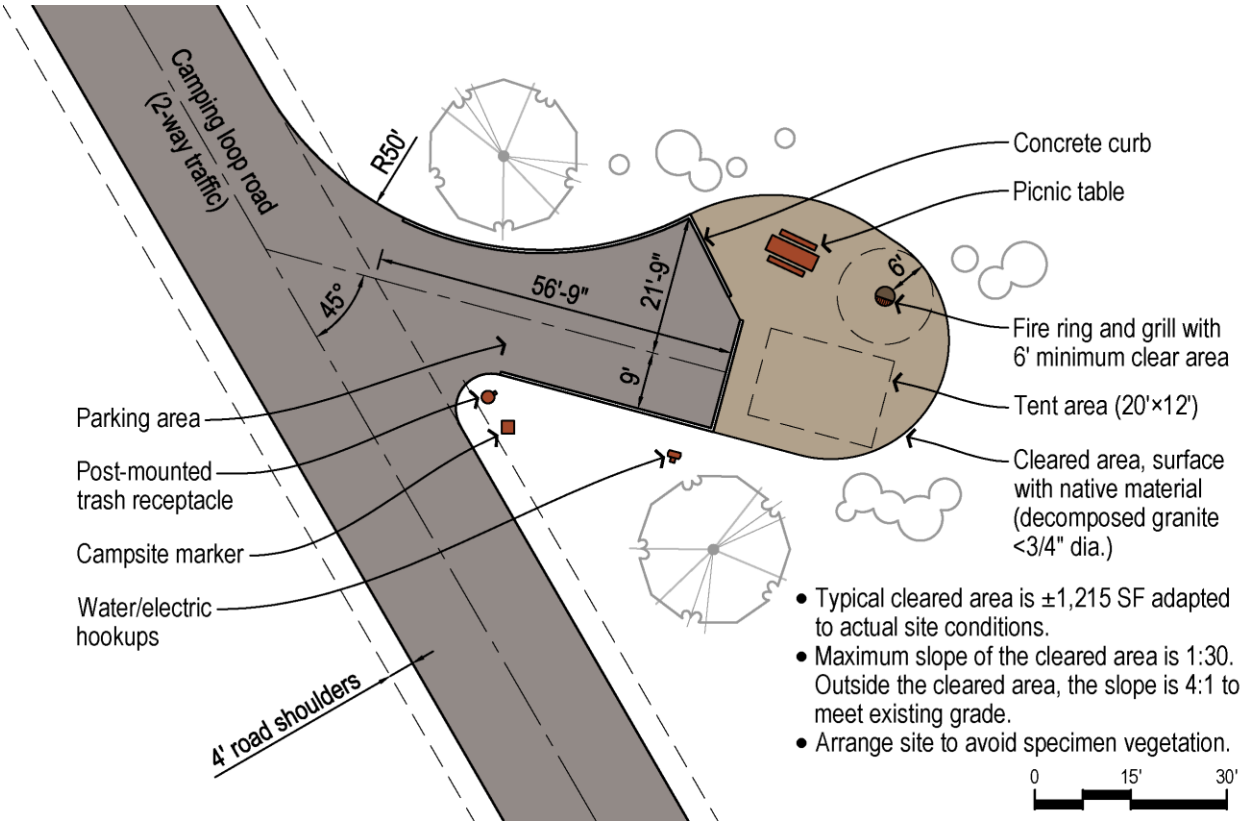

Figure 10. Typical Overnight Camp Site

3.2.4.2 Group Campground and Picnic Pavilions

Description: A midsize group camp site will be provided at this site to accommodate 10 to 20 RVs (see Figure 9). This group campground will offer a large cleared area with gravel for groups to set up tents, pop-up campers, small trailers, and RVs. A limited number of hook-ups for water and electrical services will be available at this campground. This area will have two group pavilions that will offer picnic tables, grills, a large fire ring with surrounding seating, and animal-proof trash receptacles. These pavilions have been located in a large flat area adjacent to the group campground. Access to the group campground and pavilions will be controlled with vehicular gates. A restroom for the group campground is located at the northwest corner of the camping area and this northern edge of the group camping area is screened from the entry road and a possible future dump station with a large berm.

Intended use: The group camping area and picnic pavilions are intended to provide outdoor gathering and event spaces for medium-sized groups. The Pinal County Open Space and Trails Department will determine the maximum number of groups and individuals per group allowed in the group campground. The County will also determine the maximum number of occupants for each pavilion based on local municipal codes.

Intended users: It is anticipated the pavilions will be available for reservation to users of the group campground only under a separate use fee. There will not be a separate parking area for the pavilions or restroom since the users will already have their vehicles parked in the group campground.

Design criteria: The group campground is intended to have a graded unpaved surface or compacted ¼-inch minus decomposed granite. The two pavilions will be located on a concrete pad and separated by a wide concrete walk between the pavilions. Each pavilion is anticipated to be approximately 30 feet by 40 feet, and the architectural character will be similar to that of the restrooms and trailhead and archery range shade canopies. Amenities at the pavilions will include several large 4-foot by 6-foot pedestal style grills, a large fire ring with surrounding seat wall or benches, and trash receptacles. The pavilions will also have permanent picnic tables with a portion of these tables providing ADA-compliant access as required by ADA. The paving material shall be concrete underneath the pavilions and amenities. Structure and furnishing materials and finishes will be heavy-duty and in keeping with the character of the natural desert environment.

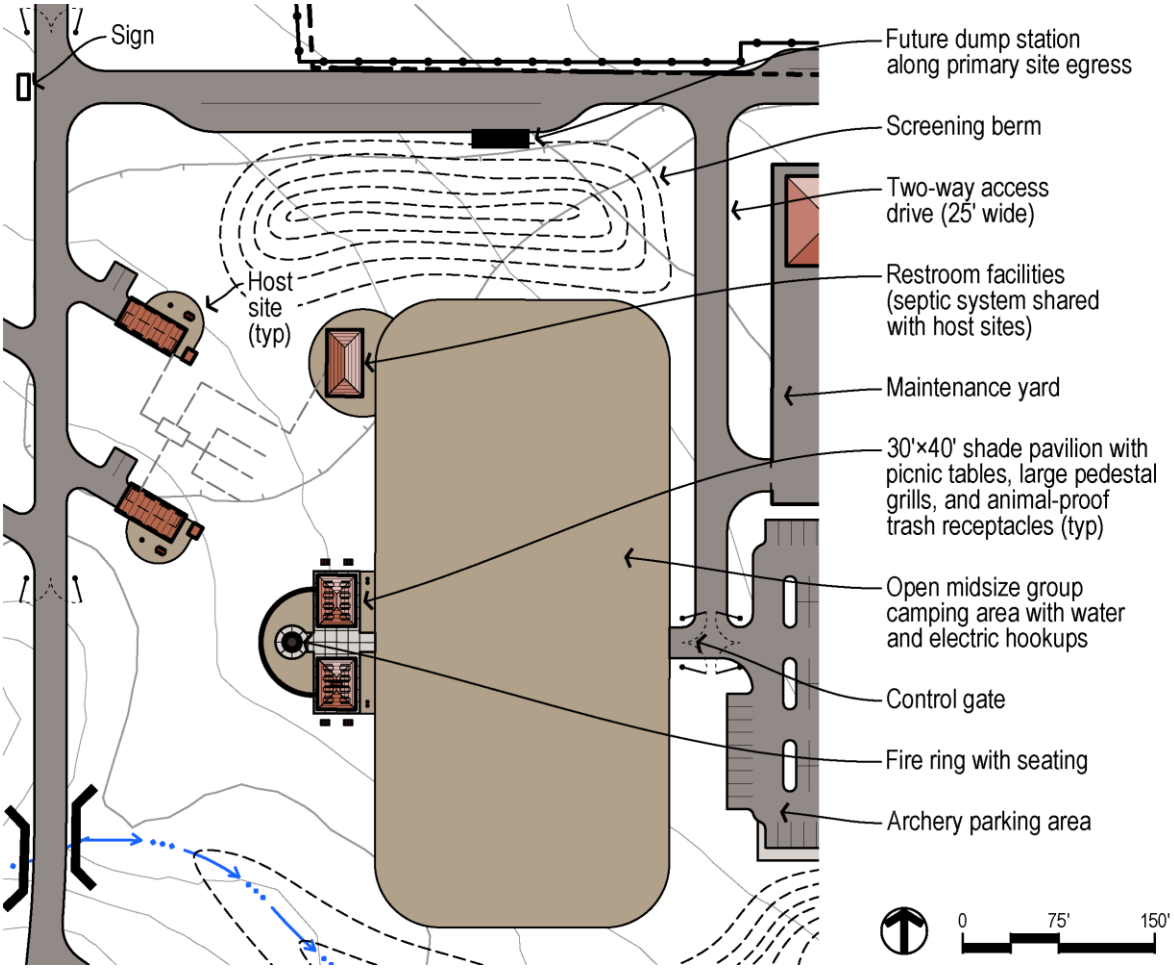

Figure 11. Group Campground and Picnic Pavilions

3.2.4.3 Archery Range and Parking Area

Description: During the development of the Palo Verde Park Master Plan, one of the recreational facilities identified by the public and supported through the planning process was the possibility of an archery range to serve this area of Pinal County. This proposed range is identified to occur within the borrow pit at the Farrell Road site (see Figure 9). The borrow pit is approximately 15 feet deep along the east side of the park, this recessed landform is nearly ideal for an archery

range because the shooting lanes can occur in the bottom of the pit, and the earth slopes of the pit will contain and screen the archery facilities from the residential properties to the east. This landform will also nearly eliminate the risk of an errant shot hitting anything but the side slope of the pit. The range will be set up to accommodate shooting lanes suitable for competitive archery tournaments and for the recreational archer and the bow hunter to be able to practice their sport. Shooting lanes will be provided and will be oriented to maximize the sun orientation with the archers shooting from the south to the north. There will be a large shade structure provided along the south side of the lanes for use by the archers and for spectators to be in the shade during tournaments. It is not anticipated that the archery range will be regularly staffed. Access and vehicular parking will be provided in a shared-use parking area outside of the borrow pit to the west of the lanes. An accessible ramp and walkway system will lead from the parking area down into the shade canopy area. This access walk will enable the County to control access into the range area that will be beneficial during paid tournament events. A parking lot will be provided to accommodate approximately 50 stalls.

Intended use: The archery range will be available for recreational target shooters to practice shooting at stationary targets arranged at varied distance from the shooting line to the target. Additionally, the size and flexibility of this range will be able to accommodate archery tournaments that with local, regional, and perhaps even national level archers.

Intended users: For the most part, the range will be open to the public for recreation target practice. There will be designated target lengths set up to allow archers to shoot varied distances. This accommodates both beginner-level shooters with shorter target lengths and more accomplished or competition shooters with longer targets. The target stands will be portable so the County can alter the target configuration as needed. This range will also have the capacity to serve regional level archery tournaments These events would be scheduled event that would make use of the entire facility and may occur over several days. With the adjacent campground facilities, this will prove to be an attractive asset for the tournament archers and in turn an important facility in the County's recreation portfolio.

Design criteria: The target range will occur in the bottom of the basin where the shooting lanes will be graded to a nearly level condition while still allowing drainage to sheet flow across the lanes and into retention swales or basins around the perimeter of the lanes and at the toe of the side slopes of the borrow pit. The surface of the shooting lanes will be treated with a ¼-inch decomposed granite to easily accommodate foot traffic and to also provide a dust control barrier over the site. A large canopy structure is proposed along the south side of the lanes to accommodate spectators and a place for shooters to step out of the sun for respite on sunny days. The side slopes of the pit will be treated with a heavy crushed rock armament minimize erosion and to make it rather undesirable for pedestrians to want to go up and down these slopes. The upper perimeter of the basin will have a barrier fence and signage warning that will direct the public away from entering the range at the designated entry. This entry will occur on the west side of the range and an accessible ramp will be arranged to allow safe and easy access to the parking area that will be outside of the pit on the west side. Restroom facilities will be available as vault toilets southeast of the archery range parking lot. There will be designated retention areas to address the typical storm drainage condition. In a major storm event, the bottom of the range area may become inundated due to flows off the mountains, but it is expected that these flows will quickly percolate into the soil. For the parking lot, typical parking stalls will be 10 feet

wide by 20 feet long with wheel stops. The parking surface may be chip-sealed graded roadbed initially and then later paved with asphalt and striped as a phased improvement. The parking areas will provide ADA-accessible stalls per County and federal regulations

3.2.4.4 Trailhead and Parking Area

Description: It is anticipated that trailhead parking will be in demand at this site. The area chosen offers easy access to the Palo Verde Mountains trail network. The trailhead area will feature restroom facilities and up to four shade canopies for trail staging or picnicking per public interest (see pages 43 and 44 for more information about the restrooms, shade canopies, and amenities). The area is relatively flat with minimal impact to smaller washes and natural flora. The parking is setup for two-way travel with head-in perpendicular parking. There are also 4 parallel equestrian parking stalls provided along with a hitching rail and a mounting block. The parking lot provides approximately 52 standard spaces and accommodates room to add parking bays in the future for approximately 38 additional stalls (see Figure 12). Landscape islands within the parking areas shall remain natural desert in keeping with the existing vegetation.

Intended use: The parking areas provide day-use access to the site facilities and trail network for hiking, wildlife watching, mountain biking and picnicking. No overnight parking will be permitted in these parking areas.

Intended users: The parking areas serve local and regional users accessing the site by vehicle.

Design criteria: Turning radii on the drive aisles will accommodate vehicular traffic consisting of standard passenger vehicles, pick-up trucks pulling trailers, RVs, school buses, maintenance vehicles, and emergency response vehicles. Typical parking stalls will be 10 feet wide by 20 feet long with wheel stops. The parking lot surface may be chip-sealed graded roadbed initially and then later paved with asphalt and striped as a phased improvement. The parking areas will provide ADA-accessible stalls per County and federal regulations.

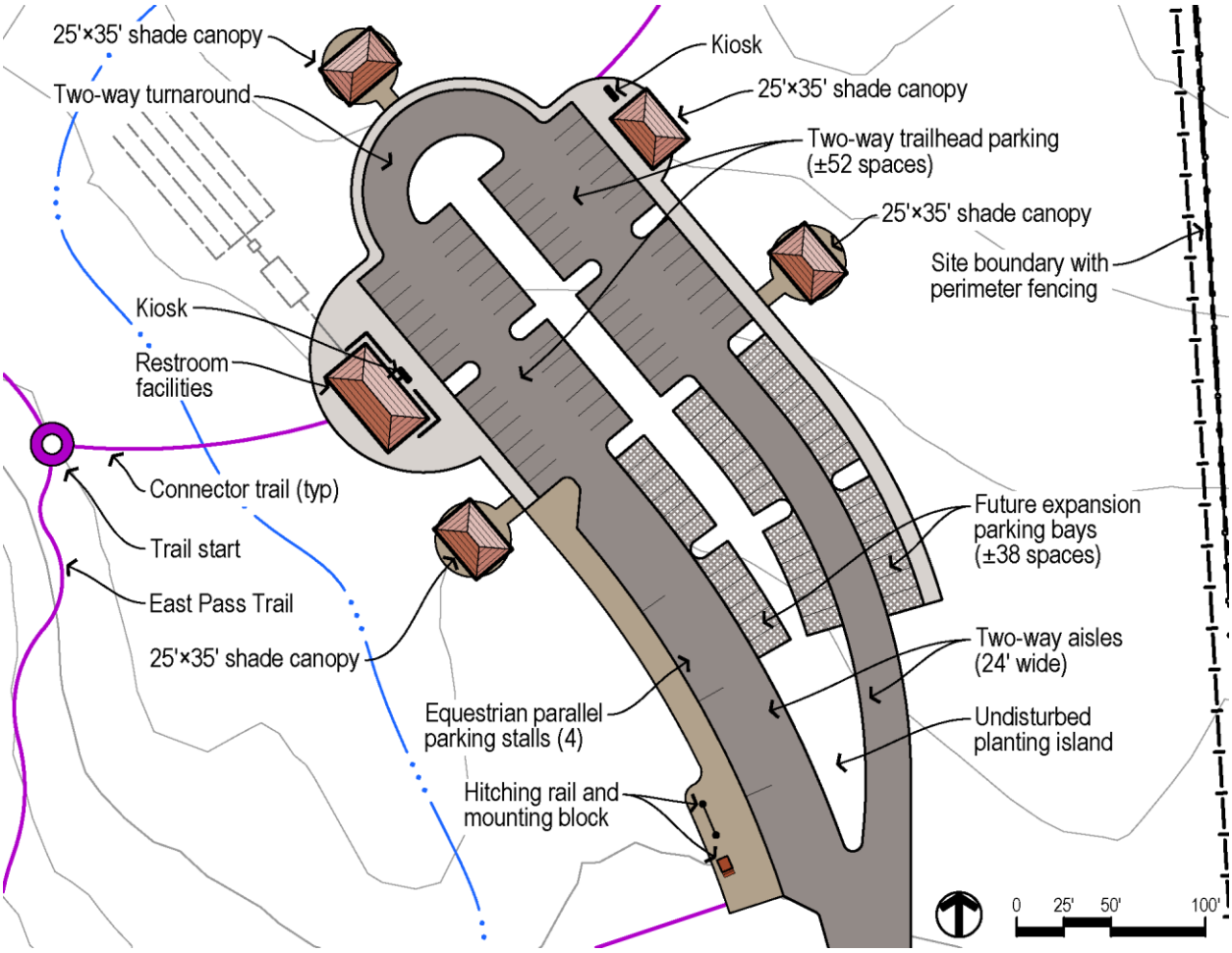

Figure 12. Farrell Road Trailhead

3.2.4.5 Restroom Facilities

Description: Restroom buildings will be sited for ease of access with one building located at the trailhead, three at the camping loops, and one at the group campground. Vault toilets are intended to provide restroom facilities at the archery range, but depending on availability of funds and utility services, the County may initially install vault toilets where restroom buildings are currently proposed. Restrooms buildings are intended to be a structure with toilets and sinks for hand washing. It is intended that the County will purchase a packaged restroom building system from a manufacturer who has the capability to provide a building design that blends with the natural setting. There will also be a water jug spigot located outside the trailhead restroom building and the north camping loop restroom for park visitors to fill their portable water containers. Where vault toilets are installed, models will be purchased as a packaged system that includes the vault and building structure. These models will be selected to provide the most current technologies associated with this type of backcountry, waterless waste management system. Parking spaces for smaller vehicles are provided in close proximity to the public restroom facilities for convenient access. An additional restroom will be incorporated into the administrative building inside the maintenance facility and will be available to County staff and volunteers only.

Intended use: The restroom facilities are intended for the comfort of park users and will help reduce the unwanted occurrence of human waste being deposited throughout the site.

Intended users: The restroom facilities will be utilized by park visitors, park personnel, and emergency response staff serving the park.

Design criteria: The restroom buildings will be provided as a packaged system that will include a building structure, toilets, and hand washing stations. It is intended that water service will be available to the restroom facilities. The County may choose to install the type of waste management system that best meets the needs and constraints of this site with options including low-flow toilets, composting toilets, and vault toilets. A septic leach field will most likely be required at restroom buildings to handle liquid waste. Depending on the anticipated use, the toilets may be single unisex models or separate restrooms for men and women with multiple stalls. If multiple-stall restrooms are installed, at least two stalls shall be ADA-accessible at each facility or as required by current ADA standards. If vault toilets are installed, the County would select a vault toilet manufacturer that accommodates design options for the structures to tailor the appearance of the structures to reflect aspects of the park's design theme. Head-in parking will be provided at the restroom facility with at least one ADA-accessible parking space or the number required by the current codes at the time they are installed. It is intended that a water jug spigot will be located at the restroom or integrated into the building design to allow visitors to fill their portable water containers. Automatic shut-offs will be required at sinks and the water jug spigot to prevent water waste.

3.2.4.6 Shade Canopies

Description: Four shade canopies are proposed at the trailhead, two at the group picnic pavilions, one at the archery range, and one at each host site. Additional shade structures may be provided at the maintenance facility as needed for outdoor storage. The precise locations of the shade canopies may be field adjusted to avoid disturbing specimen trees or cacti, washes, or unique geological formations. The trailhead shade canopies will be located near the parking areas for visibility and accessible by an ADA-compliant natural-surface trail. The group pavilions will include picnic tables, grills, a large fire ring with surrounding seating, and animal-proof trash receptacles. Each trailhead canopy will provide benches and trash receptacles and, depending on public interest and available County funds, some trailhead canopies may also include picnic tables and grills. The archery range canopies may include benches to layout gear.

Intended use: The trailhead canopies are intended to provide a staging area for trail users beginning their visit and a shaded respite for those finishing their hikes or rides. It is anticipated that the trailhead canopies will be open year-round for park visitors unless the day-use area is closed; these canopies will not be available for overnight use. These trailhead shade canopies as well as the archery range canopy may include benches for users to sit and layout gear. The host shade canopies are intended to provide comfortable accommodations for host volunteers.

Intended users: These canopies will be utilized by hikers and riders accessing the trail network, archers, picnickers, and hosts.

Design criteria: The shade canopies should demonstrate an architectural style that is responsive to the desert setting. Specific materials will be selected during design, but raw steel structures

when allowed to oxidize will in time blend nicely with the colors of the desert. Any path leading from the parking lot to a shade canopy shall not exceed five percent longitudinal slope and two percent cross-slope and should be a smooth, accessible surface such as ¼-inch minus decomposed granite. The graded areas under the canopies shall be relatively level. Accompanying site furnishings, such as benches, trash receptacles, and hitching posts shall be chosen to be vandal-resistant, accessible, and durable for many years of use. At least one animal-proof trash receptacle will be located at each shade canopy to encourage clean-up by visitors. Picnic tables, fire rings, and BBQ grills will not be provided. The shade canopy at the archery range is intended to shade archers during their range practice. This canopy is shown at 25 feet by 300 feet.

3.2.4.7 Signage and Monumentation

Description: An entry monument sign will be located near the entrance approach from Farrell Road to showcase the name of the site and its status as a park within the Pinal County Open Space and Trails Department. Rules signage may be located near the entry station, trailhead, archery range, group campground, public restrooms, and other locations depending on need to clarify park regulations. Wayfinding within the park will require the use of additional signs to direct as well as designate the types of activities intended at each location. Appropriate signage shall be placed throughout the park to provide clarity to users. Locations shall be selected based on need to direct and assist visitors in understanding where facilities and trails may be found. Kiosks will feature information about the site and include interpretive signage about the Sonoran Desert Tortoise habitat in the area. This interpretive signage will educate visitors about the importance of leaving Sonoran Desert Tortoise alone and serve to mitigate impacts that the trails and site development might have on their range and movements.

Intended use: The entry monument will provide visitors with a sense of arrival, serve as a wayfinding landmark, and enable them to identify the responsible jurisdiction overseeing the park. Rules signs will list expectations for park etiquette and applicable County regulations. Directional signs will assist users with finding facilities within the site. Interpretive signage will inform visitors about Sonoran Desert Tortoise and other natural features of the Palo Verde Mountains.

Intended users: Signage will inform and direct visitors, staff, and emergency personnel.

Design criteria: The entry monument will be located to provide the greatest visibility to those entering the park from Farrell Road. There will be a cohesive design and hierarchy for the signage located within the site. The signage character will be based on the established standards of Pinal County for rural parks. Signs will be located to be highly visible from roads and trails without obstructing sight lines or passage of people or vehicles. The use of reflective signage materials may be helpful at night and during times of reduced visibility like dawn and dusk. Up to ten kiosks may be located at public restrooms and shade canopies. If the entry station is installed in a future phase, an additional kiosk may be placed near the iron ranger. Kiosks at restrooms may be freestanding or mounted to the building face or privacy screen wall.

3.2.4.8 Multi-Use, Non-Motorized Trails

Description: The trailhead and staging area will link to the Palo Verde Mountains trail network, portions of which occur within this site boundary (see page 68 for more information about the

overall trail network). Four named trails occur within the site boundary as well as paths connecting restrooms, shade canopies, and individual campsites to the trail network (see Figure 13).

Intended use: The onsite trails provide access from the trailhead, camping loops, and public restroom facilities to the larger trail system.

Intended users: The trails at this site are intended to be multi-use and non-motorized, providing access to hikers and mountain bikers.

Design criteria: The trails at this site will follow the design and use guidelines developed by the County. The proposed named trails through this site vary in intended difficulty and are primarily 2 feet wide; the North Loop Trail north of the trailhead is the exception at 5 feet wide. The path connections from the trailhead, camping loops, and public restrooms to this trail network are intended to have a low degree of difficulty. These connector paths will be routed to avoid steep slopes and obstructions and minimize changes in elevation and disturbance to the site. When necessary, trail erosion mitigation and edge treatments will be installed to ensure the stability of these trails and user safety. Therefore, the site impact of the named trails is calculated based on the proposed width plus an additional foot of clearance on each side. The unnamed connector paths to the restroom will be single-track trails from 2 to 8 feet wide. For the purposes of calculating the site impact for these connector paths, the trailhead and camping loop restroom paths are calculated at a 6-foot width with 1 foot of clearance on each side, and the minor paths linking campsites to the restroom paths are calculated at a 2-foot width with 1 foot of clearance on each side.

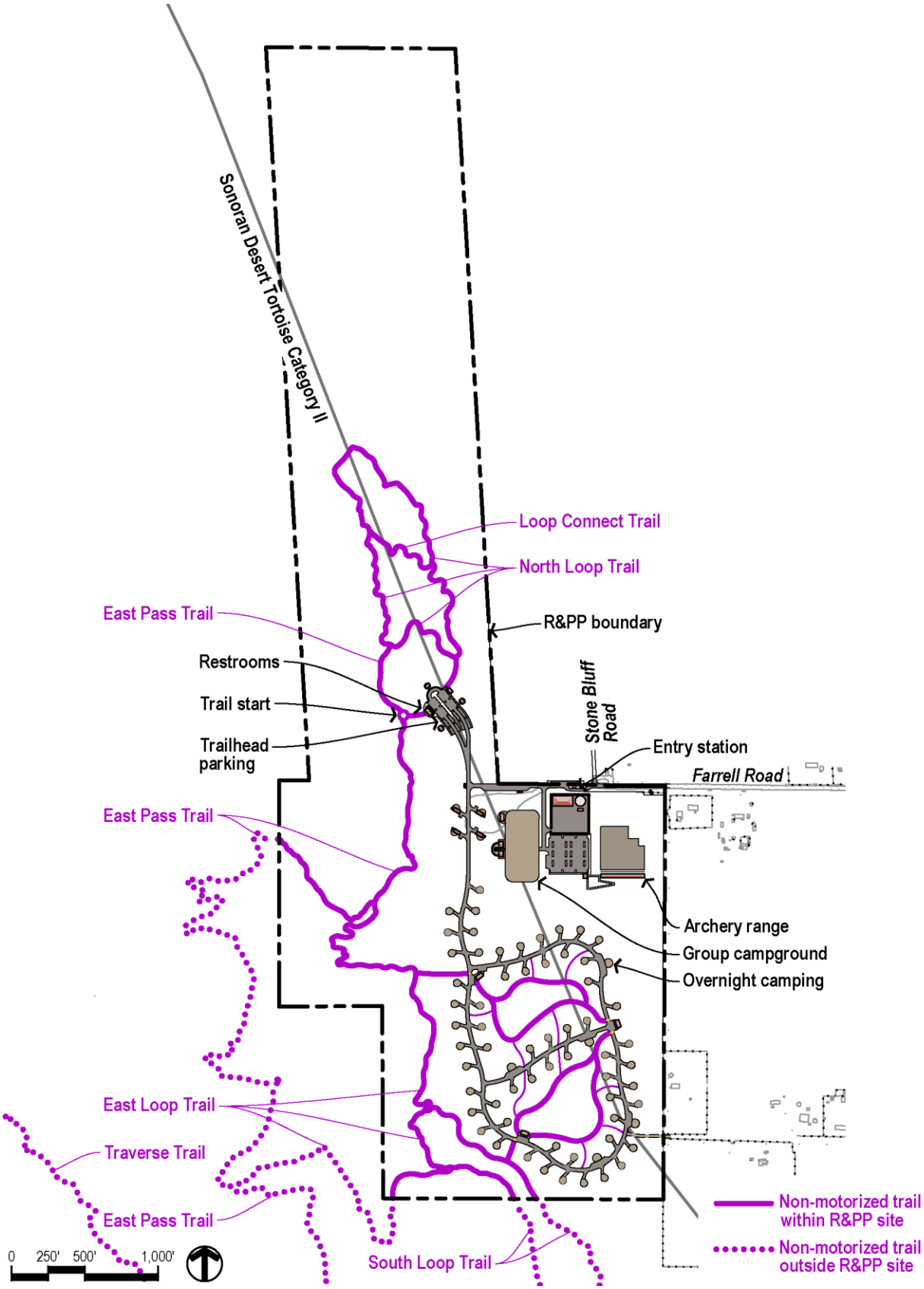

Figure 13. Trails at the Farrell Road Trailhead and Campground

3.3 Summary of Site Impacts

The site layout sensitively minimizes the footprint of the proposed facilities to increase users' recreational enjoyment of the site and limit disturbance to natural habitat. The R&PP site boundary shown in red on Figure 1 is approximately 298.38 acres. The proposed facility area shown in green on Figure 1 and by the orange dashed line on Figure 8 is roughly 114.04 acres and is offset an average of 50 to 200 feet beyond the footprint of the site facilities. It includes washes and natural areas that are not intended to be disturbed by the proposed facilities or their construction. The proposed park roadway and facility layout will impact approximately 24.70 acres, as totaled in Table 6 below, which equates to 22 percent of the facility area and 8 percent of the R&PP site boundary. 15.46 acres of developed facilities occur within Category II Sonoran Desert Tortoise habitat, 1.77 acres of which are sited on previously disturbed areas of the site. The acres of disturbance for named trails within Category II Sonoran Desert Tortoise habitat are calculated separately in Section 5.

3.3.1 Roadway Impacts

The proposed roadways have been laid out in CAD on the base topography available. The objective of the roadway design is to lay lightly on the site. The vertical road alignments are responsive to the general slope conditions of the natural grade, which is relatively flat. The road grades anticipated based on the proposed site plan are around 2 percent or less with some regrading required at culverted and dip drainage crossing.

The combined length of the proposed internal roadways is approximately 1.53 miles in length. These drives are on undisturbed natural areas. Their site impact width is calculated as the drive width plus 6 feet on both roadway edges to be used for construction purposes and tying in roadway shoulders to existing grade as needed. The proposed offsite improvements along the Farrell Road alignment are less than 0.15 mile in length along an existing graded road that has already disturbed the natural site condition. For the purpose of this evaluation, we have calculated the additional impact to this road as a 15-foot wide cross section to factor in the existing disturbance. In total, roadway improvements represent approximately 7.75 acres of site disturbance.

3.3.2 Facility Impacts

The park facilities have also been developed as CAD drawings to depict the general layout being considered for this area. Once the configuration of the facilities was designed, a 4-foot envelope was applied along the outside perimeter and added to the square footage of the facilities to allow for potential impact to the site for construction purposes. Additional disturbance already applied to the roadways adjacent to these facilities are not included in the areas shown in the summary table below. The areas shown below are defined in both square feet and acres of impact for each facility. The combined area of impact from the facilities at the Farrell Road Trailhead and Campground is approximately 16.95 acres.

Table 6. Summary of Farrell Road Trailhead and Campground Site Impacts

Facility	Dimensions (in feet)		Area	
	Width	Length	Square Feet	Acres
Farrell Road (offsite previously disturbed)	11	570	6,270	0.1439
Entry station pull-aside (offsite undisturbed)	26	200	5,200	0.1194
Entry station and egress lane			5,510	0.1265
Dump station	30	330	9,900	0.2273
Internal roadways (two-way)	37	7,813	289,081	6.6364
Secondary/emergency exit	32	245	7,840	0.1800
Wash crossings (3)			23,736	0.5449
Archery range and perimeter grading (7.3 acres on previously disturbed area)			0	0.0000
Archery range parking (1.8 acres on previously disturbed area)			2,250	0.0517
Maintenance yard (1.5 acres on previously disturbed area)			7,943	0.1823
Retention basin and piped outlet (1.5 acres on previously disturbed area)			55,792	1.2808
Berming north of group camping (previously disturbed)			0	0.0000
Group camping and shade pavilions (2.9 acres on previously disturbed area)			1,891	0.0434
Group camping restroom (previously disturbed)			0	0.0000
Trailhead parking			42,528	0.9763
Trailhead future parking			15,283	0.3508
Trailhead restrooms			5,320	0.1221
Trailhead shade canopies areas			7,395	0.1698
Campground sites (60 pull in)			257,280	5.9063
Campground sites (5 parallel)			25,860	0.5937
Campground restrooms and parking			15,068	0.3459
Onsite water services*	6	4,825	28,950	0.6646
Onsite electric services*	6	4,825	28,950	0.6646
Septic systems/leach fields			30,920	0.7098
Host camp sites (5,333sf each; 3 on undisturbed, 1 on previously disturbed)			15,999	0.3673
Shade canopy and graded access at south loop			4,431	0.1017

Table 6. Summary of Farrell Road Trailhead and Campground Site Impacts

Facility	Dimensions (in feet)		Area	
	Width	Length	Square Feet	Acres
Shade canopy and graded access at north loop			5,309	0.1219
Entry monument/signage			1,000	0.0230
Perimeter fencing	4	9,231	36,924	0.8477
Perimeter fencing (offsite)	4	4,752	19,008	0.4364
Multi-use trails	4	8,417	33,668	0.7729
Multi-use trails	7	5,061	35,427	0.8133
Multi-use trail connections (minor)	4	2,185	8,740	0.2006
Multi-use trail connections	8	5,282	42,256	0.9701
Total Area of Impact			**1,075,729**	**24.6953**

**Utility data is still under research and the quantities for these improvements are approximate. Most onsite disturbance will occur within the drive disturbance footprint already accounted for; the linear feet listed represent lengths likely required beyond drive disturbance.*

3.4 Cost Evaluation

Development of this R&PP site may be divided into subphases, depending on the availability of funding and existing infrastructure at the time of construction. The following order-of-magnitude cost evaluation below represents projected costs of full build out of the proposed site plan based on current construction costs and will need to be reevaluated at the time of construction. This cost evaluation represents expected construction and design costs for full build out of the proposed site plan and does not include potential land acquisition costs for right-of-way along Farrell Road.

Table 7. Farrell Road Trailhead and Campground Order-of-Magnitude Cost Evaluation

Construction Costs	Unit	Quantity	Unit Cost	Total
Mobilization	LS	1	$50,000.00	$50,000.00
Clear and grub	LS	1	$50,000.00	$50,000.00
Earthwork	LS	1	$325,000.00	$325,000.00
SWPPP/dust control	LS	1	$60,000.00	$60,000.00
Construction surveying/staking	LS	1	$60,000.00	$60,000.00
Traffic control	LS	1	$3,500.00	$3,500.00
Vegetation slash stockpile	LS	1	$15,000.00	$15,000.00
Vegetation salvage (cacti)	AL	1	$30,000.00	$30,000.00
Farrell Road (offsite roadway)	LF	570	$50.00	$28,500.00
Farrell Road (offsite electric service)	AL-LF	2,700	$55.00	$148,500.00
Onsite well	AL	1	$400,000.00	$400,000.00
Water storage tank	AL	1	$150,000.00	$150,000.00

Table 7. Farrell Road Trailhead and Campground Order-of-Magnitude Cost Evaluation

Construction Costs	Unit	Quantity	Unit Cost	Total
Booster pump station	AL	1	$50,000.00	$50,000.00
Onsite water service	AL-LF	13,181	$65.00	$856,765.00
Onsite electric service	AL-LF	13,447	$55.00	$739,585.00
Administration building	AL	1	$800,000.00	$800,000.00
Shade/storage structures in maintenance yard	AL	1	$200,000.00	$200,000.00
Maintenance equipment	AL	1	$250,000.00	$250,000.00
Masonry screen wall (8 feet tall)	LF	1,025	$150.00	$153,750.00
Maintenance yard access gate	EA	1	$12,000.00	$12,000.00
Asphalt pavement section (onsite)	SF	374,195	$10.00	$3,741,950.00
Asphalt maintenance yard	SF	68,900	$10.00	$689,000.00
Chip-sealed roadbed	SF	116,798	$7.00	$817,586.00
Shoulder fine grading	LF	7,868	$2.00	$15,736.00
Archery range	SF	106,688	$3.00	$320,064.00
Archery equipment	LS	1	$60,000.00	$60,000.00
Box culvert drainage crossing	EA	3	$150,000.00	$450,000.00
Pipe culvert drainage crossing	AL	1	$180,000.00	$180,000.00
Retention basin drainage outlet	LS	1	$85,000.00	$85,000.00
Check dams	AL	1	$200,000.00	$200,000.00
Concrete paving	SF	26,012	$12.00	$312,144.00
Concrete steps	LS	1	$25,000.00	$25,000.00
Handrailing for steps and ramps	LF	665	$75.00	$49,875.00
¼” minus stabilized DG	SF	103,063	$2.00	$206,126.00
Multi-use paths	LF	20,945	$4.00	$83,780.00
Restroom/septic system	EA	5	$250,000.00	$1,250,000.00
Vault toilet	EA	1	$20,000.00	$20,000.00
Entry station	EA	1	$25,000.00	$25,000.00
Dump station	EA	1	$250,000.00	$250,000.00
Shade canopy, 20'×300'	EA	1	$240,000.00	$240,000.00
Shade canopy, 30'×40'	EA	2	$45,000.00	$90,000.00
Shade canopy, 25'×35'	EA	4	$35,000.00	$140,000.00
Host shade canopy, 24'×50'	EA	4	$50,000.00	$200,000.00
Host utility hookups and septic systems	EA	4	$5,000.00	$20,000.00
Campsite utility hookups	EA	85	$1,000.00	$85,000.00
Storage shed (for hosts)	EA	4	$3,200.00	$12,800.00
Picnic table	EA	106	$2,000.00	$212,000.00

Table 7. Farrell Road Trailhead and Campground Order-of-Magnitude Cost Evaluation

Construction Costs	Unit	Quantity	Unit Cost	Total
Fire ring	EA	4	$650.00	$2,600.00
Pavilion fire ring with seating	EA	1	$5,000.00	$5,000.00
Pedestal grills	EA	4	$900.00	$3,600.00
Litter receptacle	EA	83	$850.00	$70,550.00
Jug filler	EA	5	$4,000.00	$20,000.00
Benches	EA	40	$550.00	$22,000.00
Control gates	EA	9	$4,500.00	$40,500.00
Pavement striping and marking	LS	1	$8,000.00	$8,000.00
Wheel stops	EA	186	$400.00	$74,400.00
Entry monument	LS	1	$8,000.00	$8,000.00
Signage	AL	1	$40,000.00	$40,000.00
Campsite marker	LS	65	$110.00	$7,150.00
Kiosks	EA	7	$4,500.00	$31,500.00
Wire-strand fencing	LF	13,983	$6.00	83,898.00
Construction Expenses Subtotal				**$14,580,859.00**
Administrative Expenses			**Percent**	**Total**
Agency Costs and Coordination			6%	$874,851.54
Design/Approvals/Inspections			14%	$2,041,320.26
Permits, Taxes, Bond, Insurance			10%	$1,458,085.90
Contingency			25%	$3,645,214.75
Administrative Expenses Subtotal				**$8,019,472.45**
Total Cost				$22,600,331.45

Table 8. Farrell Road Trailhead and Campground Annual Projected Cost Escalation

Construction Year	Percent	Total
2021 – 5% escalation	5%	$23,730,348.02
2022 – 5% escalation	5%	$24,916,865.42
2023 – 5% escalation	5%	$26,162,708.69
2024 – 5% escalation	5%	$27,470,844.13
2025 – 5% escalation	5%	$28,844,386.34

4. Table Top Road OHV Area

4.1 Proposed Program and Design

The Table Top Road OHV Area will provide day-use active recreation opportunities for OHV users to enjoy the park's picturesque scenery in a manner that preserves the natural, historic, and culturally significant features. Since this area is already popular with OHV users, locating this use here provides this requested facility without damaging undisturbed desert lands or impacting residential land uses along the east side of the Palo Verde Mountains. Entrance into the site is proposed to be from Table Top Road north of the Amigos Road alignment. It is anticipated that access to this site will be controlled, and fees for using the OHV facilities will be collected to help maintain this area and mitigate any environmental impacts of OHV use. Facilities include a parking and staging area with vault toilets, an open-ride area, motorized and non-motorized trails, and signage. The open-ride area will be provided in an existing cleared area. This site is not intended to have utility services. Two host sites are proposed for this area.

4.2 Proposed Infrastructure and Facilities

The various improvements proposed for this site are grouped into the following categories: roadway system, utilities and site operations, perimeter treatments, and park facilities (see Figure 14 on page 54).

4.2.1 Vehicular Access

The hierarchy of roads includes Table Top Road leading to the OHV area entrance, the loop drive at the entrance, and the internal drive connecting the facilities at this site. These roadways will require a drainage crossing to maintain existing flow patterns on the site.

4.2.1.1 Table Top Road Improvements

Description: The proposed entrance along an unimproved portion of Table Top Road approximately 435 feet north of the Amigos Road alignment. The construction of this OHV area may require improving the existing two-track trail along the Table Top Road alignment to the site entrance. The County will need to establish right-of-way for Table Top Road up to the site entry, and the improved roadway will become an improved County road.

Intended use: The roadway improvements will provide better access to the site.

Intended users: The primary users will be visitors using the OHV area and trails as well County maintenance staff and emergency and patrol service providers.

Design criteria: The roadway will be sized to meet the requirements of the local transportation standards for the intended uses within the site as specified by Pinal County. The typical trailhead visitors will access the park via standard passenger vehicles or pick-up trucks pulling trailers for equestrians. The surface condition of this roadway will be chip-sealed graded roadbed.

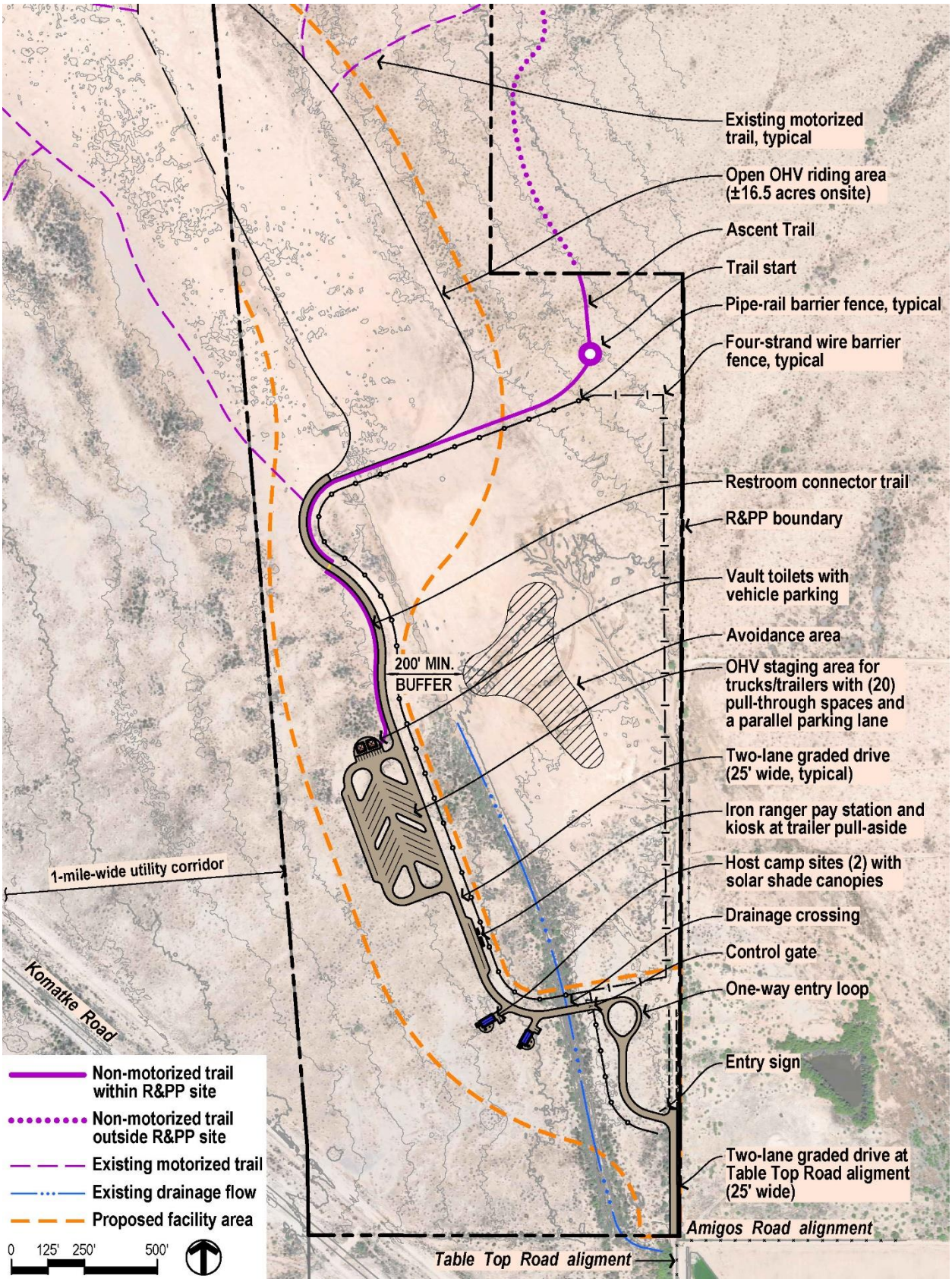

Figure 14. Table Top Road OHV Area

4.2.1.2 Site Entrance

Description: The site entrance is a two-lane drive that serves as ingress and egress for the site from Table Top Road. This drive connects to a single-lane, one-way turnaround loop that allows arriving visitors to easily exit the site when the gates are closed. The vehicular swing gates will control access to the site from the entry loop with a Knox Box for emergency access. Pinal County Open Space and Trails Department signage will feature the park and trailhead name prominently at the Table Top Road entrance into the trailhead (see page 61).

Intended use: This primary entry will serve as the primary ingress and egress for all public vehicles entering the park and as the control point for park access.

Intended users: The primary users will be members of the public who intend to use any of the recreational activities available within the park. Users also include service and maintenance staff employed by the County who have operational activities to perform as well as emergency and patrol service providers.

Design criteria: Roadways will be sized to meet the requirements of the local transportation standards for the intended uses within the park as specified by Pinal County. The surface condition of this roadway may be chip-sealed graded roadbed. The two-way entry drive and one-way loop will accommodate cars, pickup trucks, and vehicles towing trailers. The two-lane roadway will be 25 feet wide with 12.5 feet of driving width each direction and a 4-foot shoulder on each side. The one-way entry loop will be 15 feet wide with a 4-foot shoulder on each side. The shoulders will be graded to direct drainage flows away from the roads.

4.2.1.3 Internal Roadway

Description: The proposed internal roadway is intended to allow vehicular access from the entry drive to the staging area, open-ride area, and trails when the site is open for visitors as well as the host sites. This two-way drive will provide one lane to travel in each direction.

Intended use: The internal roadway will provide a direct vehicular connection to the recreational amenities and host sites from the site entrance.

Intended users: The internal roadway is intended to be utilized by visitors as well as park staff and emergency personnel.

Design criteria: The internal road will accommodate vehicular traffic consisting of standard passenger vehicles, pick-up trucks pulling trailers, RVs, buses, maintenance vehicles, and emergency response vehicles. The road alignment and design are intended to promote safe driving practices. The posted speed limit is anticipated to be around 10 to 15 miles per hour or as designated by the County. The road surface will be chip-sealed graded roadbed. The two-lane roadway will be 25 feet wide with 12.5 feet of driving width each direction and a 4-foot shoulder on each side. This designed width will allow a vehicle to pass another disabled vehicle when necessary. The shoulders will be graded to direct drainage flows away from the roads.

4.2.1.4 Wash Crossing

Description: The proposed internal roadway at this site crosses one minor drainage course, which may be accommodated through a dip crossing.

Intended use: The wash crossing is intended to continue the existing drainage pattern on site with minimal disturbance by the roadway.

Intended users: Most users will be visitors in pick-up trucks pulling trailers. Other vehicles using this wash crossing include park maintenance vehicles, waste management vehicles, and emergency service vehicles.

Design criteria: The dip crossing will be engineered to accommodate the typical flows anticipated and be designed into the roadway vertical alignment. This simple design will contain and direct the natural flow of water over the roadway. Rip rap will be provided on both sides of the crossing to minimize erosion of the roadway base and help maintain the roads integrity. Permanent depth markers will be located on both sides of the roadway to provide enhanced safety measures for park visitors.

4.2.2 Utilities and Site Operations

Site utilities for water, electric, and septic systems are discussed, as well as the operational needs for this site in terms of maintenance, host accommodations, and trash collection.

4.2.2.1 Utility Services

Description: This site is not intended to have utility services. The restrooms will be waterless vault toilets, and the host sites will have electricity powered by solar shade canopies.

4.2.2.2 Maintenance Facilities

Description: The maintenance facilities for the operations of this OHV site will be located at the Farrell Road Trailhead and Campground site (see page 33). Minor onsite maintenance efforts will be performed by the park hosts. This minor maintenance work will be limited to assignments that can be completed by hand tools, which may be stored in a tool shed located at the host site. Onsite trash collection will also be performed by the host(s) and taken to the Farrell Road Trailhead and Campground maintenance facility.

4.2.2.3 Host Camp Sites

Description: The County will provide two host sites for volunteer hosts to serve as the public liaisons for the park. While serving as the park's ambassadors, these hosts will also be the eyes and ears for the County regarding the activities that occur within the site. Additionally, the host will have several daily maintenance tasks to perform, such as securing the control gate as needed, removing trash and hauling it to a dumpster at the Farrell Road maintenance yard, cleaning restrooms, and maintaining the park facilities in a clean and orderly manner. It is expected that the host will have a pickup truck or similar vehicle for use during their maintenance activities, and two parking spaces for that vehicle will be provided at each host site.

Intended use: Each host site will be a permanent location with facilities intended to improve the level of comfort for the hosts and accommodate the setup of their RVs. This site will serve as their place of residence while they are performing their host duties.

Intended users: Each host site will serve an individual or couple who use this site as their residence while fulfilling their obligations as a park host.

Design criteria: The host sites are located where they are visible to the public but also provide a level of privacy for the hosts. The elements needed for each host site include a driveway, an RV parking area up to 50 feet in length, two additional parking bays for vehicles, a patio area, a storage shed, a solar shade canopy for the RV and patio, and the solar appurtenances required to provide power for the host site (see Figure 15). While the solar shade canopy will provide electricity, it is intended that hosts will refill their RV water tank at the Farrell Road maintenance yard. It is anticipated that hosts along with other site visitors will need to find offsite facilities to dispose of any sewage.

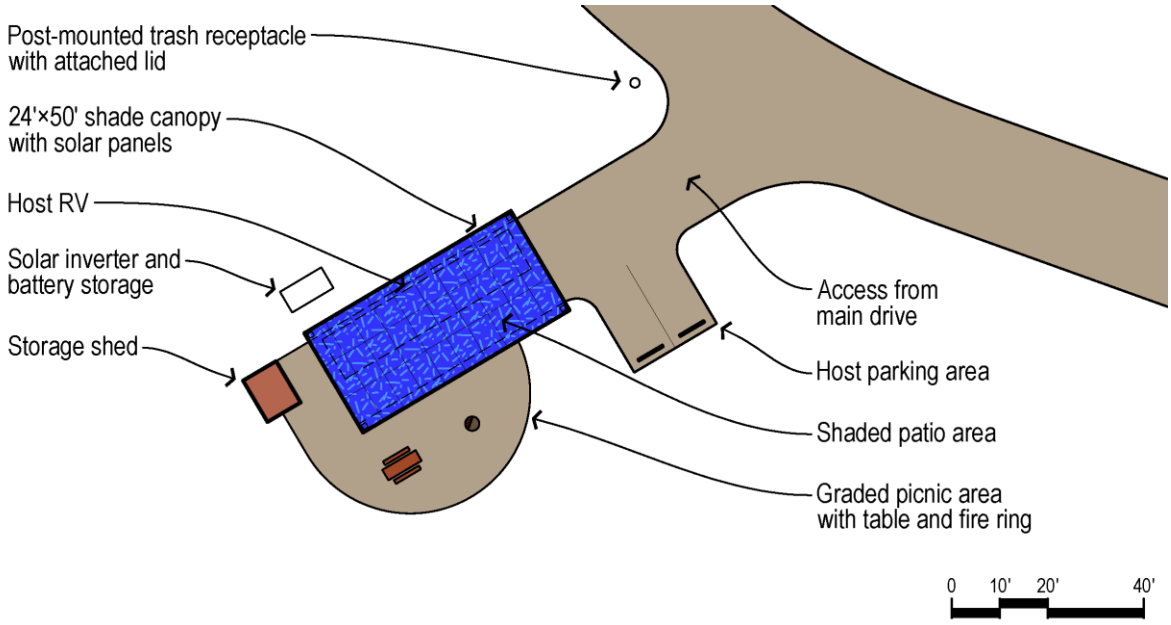

Figure 15. Typical Host Site with Solar Power

4.2.2.4 Trash Receptacles

Description: Heavy-duty, animal-resistant trash receptacles are intended to be located at the restrooms, open-ride area entrance, and host sites. These trash stations will encourage the public to place their trash at these locations and help reduce site litter.

Intended use: Individuals visiting the park may deposit their day-use trash in these receptacles. County staff will collect this trash and haul it offsite to the Farrell Road maintenance yard (see page 33) and place it in an appropriately sized dumpster at this location for pickup.

Intended users: The intended users are park visitors as well as staff.

Design criteria: The trash collection stations will be composed of heavy-duty metal trash receptacles specifically designed to be animal-resistant (specifically designated as bear proof). The lids for these units are integral to the receptacle and hinged to facilitate easy use without requiring lid removal. The receptacles will accept plastic liners to facilitate the bagging of the trash when it is collected from these containers. The trash units will be placed in areas that are convenient for users and where they would most likely want to unload their trash. The roads that service park facilities are wide enough to provide room for patrons to drive around a service

vehicle when staff is collecting trash, so the need for a widened parallel vehicular pull-off lane for trash stations is not anticipated.

4.2.3 Perimeter Treatments

Fencing will be placed around an avoidance area indicated at the site to prevent vehicular and foot traffic and vehicular gates will limit access to day-use hours.

4.2.3.1 Iron Ranger

Description: An iron ranger is a metal box that grants authorized access permits when visitors deposit their fee in a pay envelope. It provides keyed access for authorized park staff to collect these deposited fees, thereby taking the place of a regularly staffed fee collection station. Iron rangers rely on the honor system for the volunteer participation of visitors with the hope that occasional patrolling and enforcement by checking permits helps improve the participation level.

Intended use: The iron ranger collects day-use fees from visitors.

Intended users: The intended users will be visitors and County staff collecting deposited fees.

Design criteria: Park visitors will be able to parallel park in the 185-foot long pull-aside lane near the iron ranger and exit their vehicles to deposit their payments. Iron rangers are available from manufacturers that provide site furnishings and specialty products to local, regional, and state park and wildlife departments and should be installed per the manufacturer's instructions.

4.2.3.2 Fencing

Description: This site features a pipe-rail barrier fence along the west side of the entry drive and along the east edge of the internal drive to deter undesired traffic and grazing through an avoidance area on the site. This avoidance area is protected on the east side with a wire fence to fully enclose the sensitive area. It is intended that the Pinal County Open Space and Trails Department will be responsible for installing and maintaining these fences. As needed, the County may supplement this fencing with the installation of large boulders, cacti, or downed tree limbs to deter access to areas of the site (see page 69 for additional recommendations on these barrier controls).

Intended use: The fencing delineates the site entrance and drive and protects site features intended for avoidance.

Intended users: While the fencing in not intended to be used as an amenity by visitors, it helps the County maintain access to and within the site. As a secondary use, the fencing serves as a wayfinding feature for visitors.

Design criteria: The pipe rail fencing will be made up of steel fence posts and up to three rows of steel horizontal rails. The wire-strand fencing will consist of steel fence posts and four rows of stranded wire. The top three strands will be barbed wire while the bottom row will be barbless in order to permit free ingress and egress for wildlife. All steel will be untreated and allowed to oxidize naturally in keeping with the rural and natural character of the surroundings and to minimize the visual impact of the fencing. If boulders are added as barriers, they should be large enough as to not be easily moved either by human force or with the assistance of a vehicle. At

least the bottom third of the boulder should be buried during installation to reduce the ease of moving them out of place.

4.2.3.3 Control Gates

Description: Double-wide control gates will be installed at the site entry loop to indicate when the site is open or closed to visitors.

Intended use: These gates will restrict access to the site after park hours and during temporary facility closures.

Intended users: It is intended that the volunteer hosts will be responsible for operating and maintaining gated access points into this site to communicate closures to park users.

Design criteria: The gates will be simple double-leaf barrier gate arms made from unfinished steel that can be closed and locked when required to prevent unwanted access. A Knox Box will be provided at the gate for emergency personnel access as well as park staff. The gates will have night vision marking tape for enhanced visibility at night.

4.2.4 Facilities

4.2.4.1 OHV Staging Area

Description: The day-use staging area provides visitors with large vehicles, such as trucks pulling trailers, space to park and offload their OHVs. This area accommodates pull-through and turning movements of these larger vehicles. Restroom facilities are provided off the staging area for convenient access to arriving visitors (see page 61).

Intended use: The staging area accommodates parking for trucks with trailers to offload their OHVs for use at the open-ride area and motorized trails. As a day-use facility, this site will be closed at the end of each day.

Intended users: The users of the staging area will primarily be visitors planning to use the OHV facilities, but hikers may also access the Palo Verde Mountains trail network. County staff and emergency personnel may also use the staging area to provide onsite services. To reduce use conflicts, equestrian visitors will be directed to the McDavid Road staging area and are not anticipated at this site (see page 16).

Design criteria: The staging area will not be paved but will consist of a graded roadbed with a gravel surface layer. The 20 angled parking stalls are 20 feet wide by 90 feet long and designed for pull-through movements; as such, the parking aisles accommodate two-way traffic. The staging area will accommodate vehicular traffic consisting of standard passenger vehicles, pick-up trucks pulling trailers, RVs, buses, maintenance vehicles, and emergency response vehicles. A pull-aside lane is provided for users that prefer to parallel park. Landscape islands within the staging area shall be protected with temporary fencing during construction to avoid disturbing the existing natural vegetation. Head-in parking stalls at the restroom will be 10 feet wide by 20 feet long and include wheel stops. The restroom parking will provide ADA-accessible stalls per County and federal regulations. It is intended that each parking lot be sited so as not to impact the landscape significantly. There is to be minimal cut and fill required and any significant vegetations such as unique trees or cacti shall be preserved.

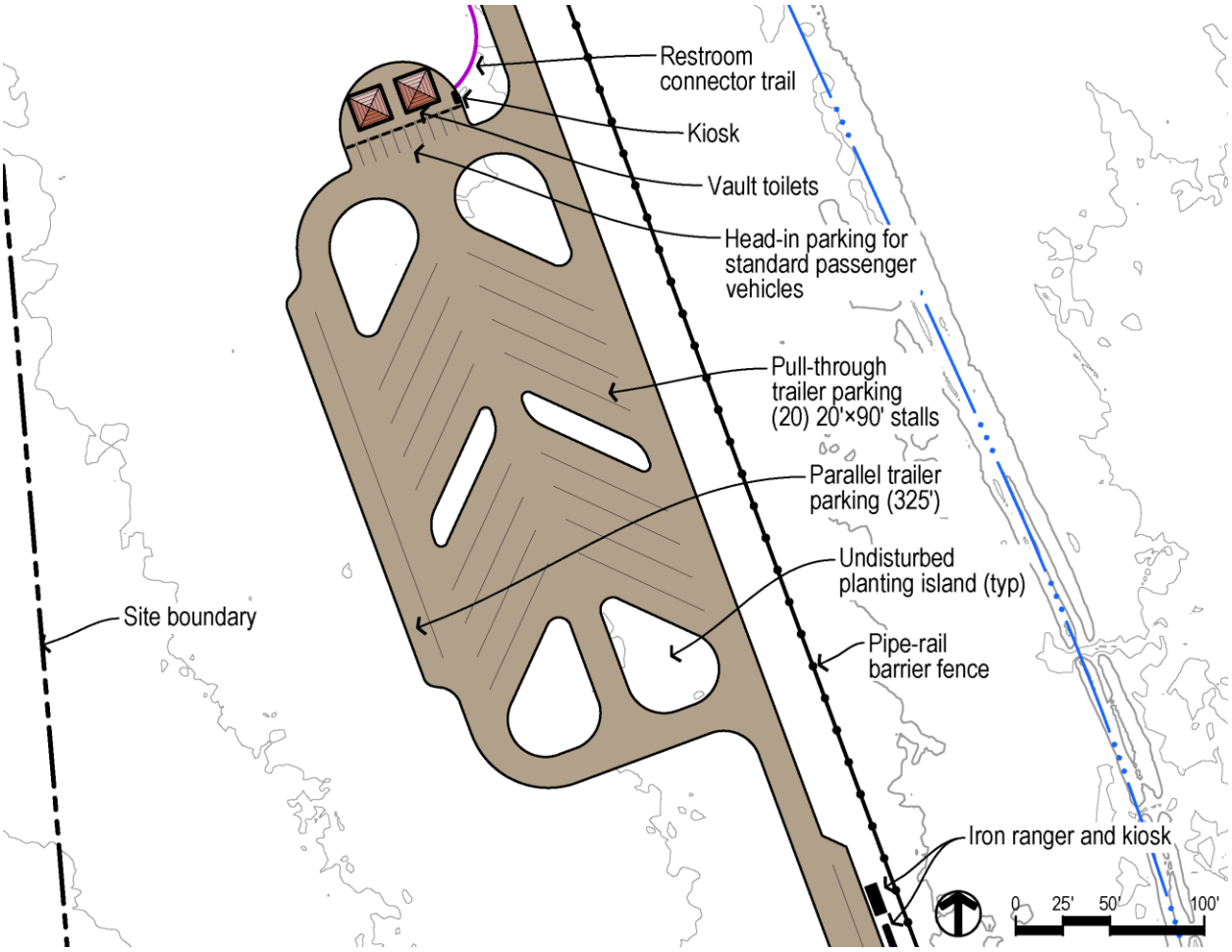

Figure 16. OHV Staging Area

4.2.4.2 OHV Open-Ride Area

Description: The OHV open-ride area proposed at this site is currently being utilized by OHV users. There is a high demand for OHV recreation, and this area of silty soil in an already obliterated area is ideal for this type of riding as it does not require site disturbance beyond what has previously occurred. In addition, many OHV users will enjoy using nearby motorized and non-motorized trails to explore the area.

Intended use: This area accommodates space for OHV users to ride in an open area rather than on designated motorized trails.

Intended users: This area is intended to be used by OHV users This area will also be accessible to emergency response teams and park personnel.

Design criteria: The County will be required to regularly monitor the area to prevent social trails from demarcating the area. It will be necessary from time to time for the County to place barrier controls in strategic locations and restore undesignated trails as well as enforce the rules and regulations for park users. These areas will be accessible only from the OHV staging area, which will be closed daily.

4.2.4.3 Restroom Facilities

Description: Restroom facilities will be sited adjacent to the staging area and include parking spaces for smaller vehicles for ease of access. They will consist of vault toilets utilizing the most current technologies associated with this type of backcountry, waterless waste management system. These vault toilets would be purchased by the County as a packaged system that includes the vault and building structure.

Intended use: The vault toilets are intended for the comfort of park users and will help reduce the unwanted occurrence of human waste being deposited throughout the site.

Intended users: The restroom facilities will be utilized by park visitors, park personnel, and emergency response staff serving the park.

Design criteria: The restrooms will be provided as a packaged system that will include a building structure, toilets, and hand washing stations. The toilets will likely be unisex models. However, if anticipated use merits the selection of separate, multiple-stall men's and women's facilities, at least one stall shall be ADA-accessible in each of these restrooms. The County will select a vault toilet manufacturer that accommodates design options for the structures to tailor the appearance of the structures to reflect aspects of the park's design theme. Head-in parking will be provided at the restroom facility with at least one ADA-accessible parking space or the number required by the current building code at the time they are installed.

4.2.4.4 Signage and Monumentation

Description: An entry monument sign will be located near the entrance approach of Table Top Road to showcase the name of the site and its status as a park within the Pinal County Open Space and Trails Department. Rules signage may be located near the restroom, open-ride area, trailhead, and other locations depending on need to clarify park regulations. Wayfinding signs may be required at this site to direct visitors to facilities. Appropriate signage shall be placed throughout the park as needed to provide clarity to users. Locations shall be selected based on need to direct and assist visitors in understanding where facilities and trails may be found. A kiosk may be provided at the iron ranger and/or restroom facility to feature information about the site and include interpretive signage about the Sonoran Desert Tortoise habitat in the area. This interpretive signage will educate visitors about the importance of leaving Sonoran Desert Tortoise alone and serve to mitigate impacts that the trails and site development might have on their range and movements.

Intended use: The entry monument will provide visitors with a sense of arrival, serve as a wayfinding landmark, and enable them to identify the responsible jurisdiction overseeing the park. Rules signs will list expectations for park etiquette and applicable County regulations. Directional signs will assist users with finding facilities within the site.

Intended users: Signage will inform and direct visitors, staff, and emergency personnel.

Design criteria: The entry monuments will be located to provide the greatest visibility to those entering the park from Table Top Road. The signage character will be based on the established standards of Pinal County for rural parks. Signs will be located to be highly visible from roads and trails without obstructing sight lines or passage of people or vehicles. While the area is

intended for day use only, use of reflective signage materials may be helpful during times of reduced visibility like dawn and dusk.

4.2.4.5 Multi-Use, Non-Motorized Trails

Description: This OHV area may have a possible non-motorized trail link to the Palo Verde Mountains trail network within the site boundary, the Ascent Trail (see page 68 for more information about the overall trail network). If this trail is constructed, a connecting path would also occur from the restroom facility at the staging area to the start of the Ascent Trail (see Figure 17).

Intended use: The onsite trail and connecting path provide access from the staging area and open-ride area to the larger trail system.

Intended users: The Ascent Trail and connecting path are intended to be multi-use and non-motorized, providing access to hikers and mountain bikers. Motorized trail riders will be directed to use the vehicular drive connecting the staging area to the open-ride area, from which users can access motorized trails in the area.

Design criteria: The trails at this site will follow the design and use guidelines developed by the County. The Ascent Trail is proposed to be a 2-foot wide challenging trail. The connecting path from the staging area to the Ascent Trail is intended to have a low degree of difficulty. This connector path will be routed to avoid steep slopes and obstructions and minimize changes in elevation and disturbance to the site. When necessary, trail erosion mitigation and edge treatments will be installed to ensure the stability of this trails and user safety. The site impact width of the Ascent Trail is calculated as 4 feet total to provide allowance for an additional foot of impact on each side. The connector path will be a 6-foot-wide single-track trail with the total 8-foot-wide impact accounting for an additional foot of clearance on each side.

4.2.4.6 Motorized Trails

Description: This area is currently popular with OHV users and has several existing two-track trails within the proposed site boundary (see Figure 17). The intent for this area is to largely leave these motorized trails in place. These are the only motorized trails intended for the Palo Verde Mountains. Some trail closures may occur where existing motorized trails conflict with the proposed non-motorized Ascent Trail (see page 68 for additional information regarding trail barrier controls).

Intended use: The motorized trails provide recreational opportunities for OHV users beyond the open-ride area.

Intended users: These motorized trails are intended to be used by OHV users only to avoid conflicts between motorized and non-motorized uses.

Design criteria: These motorized trails are intended to be left as-is and the site impact for these is calculated as zero because the trails are already disturbed. Where conflicts between motorized and non-motorized trails occur, the County may opt to close motorized trails or provide warning signage to alert users of both motorized and non-motorized trails.

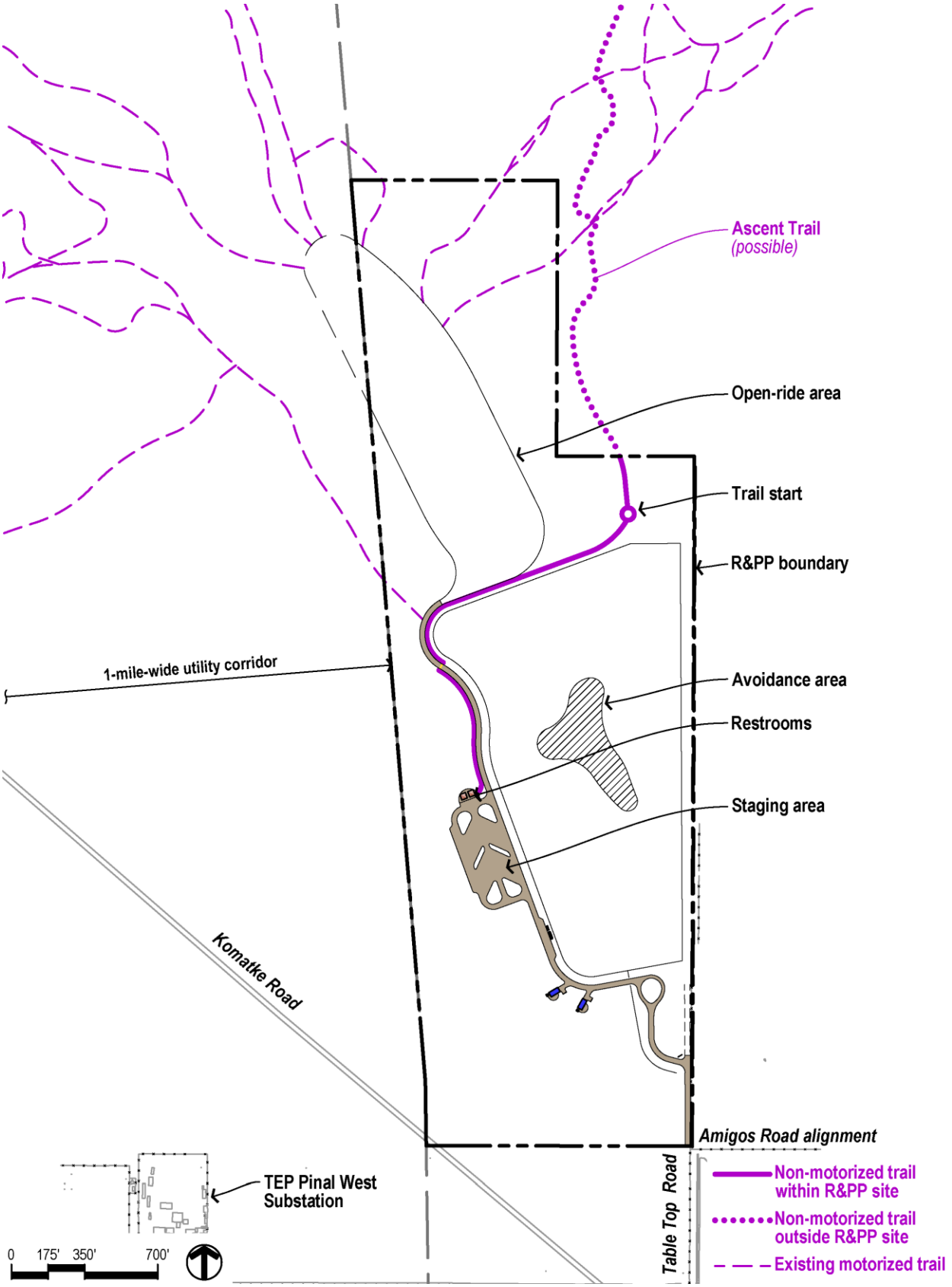

Figure 17. Trails at the Table Top Road OHV Area

4.3 Summary of Site Impacts

The site layout sensitively minimizes the footprint of the proposed facilities to increase users' recreational enjoyment of the site and limit disturbance to natural habitat. The R&PP site boundary for the Table Top Road OHV Area shown in red on Figure 1 is approximately 134.31 acres. The proposed facility area shown in green on Figure 1 and by the orange dashed line on Figure 14 is roughly 56.23 acres and is offset an average of 50 to 200 feet beyond the footprint of the site facilities. It includes washes and natural areas that are not intended to be disturbed by the proposed facilities or their construction. The proposed site roadway and facility layout will impact approximately 6.49 acres of the site, as totaled in Table 9, which equates to 12 percent of the facility area and 5 percent of the R&PP site boundary. None of the R&PP parcel contains Category II Sonoran Desert Tortoise habitat.

4.3.1 Roadway Impacts

The proposed roadways have been laid out in CAD on the base topography available. The objective of the roadway design is to lay lightly on the site. The vertical road alignments are responsive to the general slope conditions of the natural grade, which is relatively flat. The road grades anticipated based on this current alignment are less than 1 percent grade with some regrading required between the entry loop and host sites at a drainage crossing with bermed sides.

The combined length of the proposed internal roadway and entry loop is approximately 0.61 mile in length. These drives are on undisturbed natural areas. Their site impact width is calculated as the drive width plus 6 feet on both roadway edges to be used for construction purposes and tying in roadway shoulders to existing grade as needed. The proposed offsite improvements along the Table Top Road alignment are less than 0.1 mile in length along an existing two-track road that has already disturbed the natural site condition. For the purpose of this evaluation, we have calculated the additional impact to this road as a 15-foot wide cross section to factor in the existing disturbance. In total, roadway improvements represent approximately 2.77 acres of site disturbance.

4.3.2 Facility Impacts

The park facilities have also been developed as CAD drawings to depict the general layout being considered for this area. Once the configuration of the facilities was designed, a 4-foot envelope was applied along the outside perimeter and added to the square footage of the facilities to allow for potential impact to the site for construction purposes. Additional disturbance already applied to the roadways adjacent to these facilities are not included in the areas shown in the summary table below. The areas shown below are defined in both square feet and acres of impact for each facility. The combined area of impact from the facilities at the Table Top Road OHV Area is approximately 3.72 acres.

Table 9. Summary of Table Top Road OHV Area Site Impacts

	Dimensions (in feet)		Area	
Facility	**Width**	**Length**	**Square Feet**	**Acres**
Table Top Road (previously disturbed)	15	435	6,525	0.1498
Entry loop	27	415	11,205	0.2572
Internal roadway	37	2,785	103,045	2.3656
Restroom parking	20	112	2,240	0.0514
Staging area and parking lot			98,005	2.2499
Open OHV riding area (previously disturbed)			0	0.0000
Host camp site A			5,333	0.1224
Host camp site B			5,333	0.1224
Iron ranger and pull-aside lane			4,709	0.1081
Vault toilets			4,580	0.1051
Entry monument/signage			300	0.0069
Pipe rail fencing	4	3,685	14,740	0.3384
Four-strand wire fencing	4	2,500	10,000	0.2296
Multi-use trail	4	215	860	0.0197
Multi-use trail connection	8	1,985	15,880	0.3646
Motorized trails (previously disturbed)			0	0.0000
Total Area of Impact			**282,771**	**6.4915**

4.4 Cost Evaluation

Development of this R&PP site may be divided into subphases, depending on the availability of funding at the time of construction. The site plan for this area is intended to layout facilities on existing grade and balance any minor cut and fill earthwork required. The following order-of-magnitude cost evaluation below represents projected costs of full build out of the proposed site plan based on current construction costs and will need to be reevaluated at the time of construction. This cost evaluation represents expected construction and design costs for full build out of the proposed site plan and does not include potential land acquisition costs for right-of-way along Table Top Road.

Table 10. Table Top Road OHV Area Order-of-Magnitude Cost Evaluation

Construction Costs	Unit	Quantity	Unit Cost	Total
Mobilization	LS	1	$30,000.00	$30,000.00
Clear and grub	LS	1	$20,000.00	$20,000.00
Earthwork	LS	1	$95,000.00	$95,000.00
SWPPP/dust control	LS	1	$20,000.00	$20,000.00
Construction surveying/staking	LS	1	$15,000.00	$15,000.00

Table 10. Table Top Road OHV Area Order-of-Magnitude Cost Evaluation

Construction Costs	Unit	Quantity	Unit Cost	Total
Traffic control	LS	1	$1,500.00	$1,500.00
Vegetation slash stockpile	LS	1	$4,000.00	$4,000.00
Vegetation salvage (cacti)	AL	1	$1,000.00	$1,000.00
Table Top Road (offsite improvements)	AL	1	$40,000.00	$40,000.00
Graded roadbed with gravel surface	SF	185,397	$7.00	$1,297,779.00
Shoulder fine grading	LF	9,296	$2.00	$18,592.00
¼" minus stabilized DG	SF	6,297	$2.00	$12,594.00
Multi-use paths	LF	2,202	$4.00	$8,808.00
Motorized trail closure	AL	1	$10,000.00	$10,000.00
Vault toilet	EA	2	$20,000.00	$40,000.00
Entry station	EA	1	$25,000.00	$25,000.00
Host shade canopy, 24'×50', with solar panels	EA	2	$85,000.00	$170,000.00
Solar inverter and battery storage	EA	2	$12,000.00	$24,000.00
Storage shed (for hosts)	EA	2	$3,200.00	$6,400.00
Picnic table (for hosts)	EA	2	$2,000.00	$4,000.00
Fire ring (for hosts)	EA	2	$650.00	$1,300.00
Litter receptacle	EA	4	$850.00	$3,400.00
Control gates	EA	1	$4,500.00	$4,500.00
Wheel stops	EA	14	$400.00	$5,600.00
Entry monument	LS	1	$8,000.00	$8,000.00
Signage	AL	1	$10,000.00	$10,000.00
Kiosks	EA	2	$4,500.00	$9,000.00
Pipe rail fencing	LF	3,685	$40.00	$147,400.00
Wire-strand fencing	LF	2,500	$6.00	$15,000.00
Tilling and hydroseeding (±20 acres)	AL	1	$350,000.00	$350,000.00
Construction Expenses Subtotal				**$2,397,873.00**

Administrative Expenses	Percent	Total
Agency Costs and Coordination	6%	$143,872.38
Design/Approvals/Inspections	14%	$335,702.22
Permits, Taxes, Bond, Insurance	10%	$239,787.30
Contingency	25%	$599,468.25
Administrative Expenses Subtotal		**$1,318,830.15**
Total Cost		$3,716,703.15

Table 11. Table Top Road OHV Area Annual Projected Cost Escalation

Construction Year	Percent	Total
2021 – 5% escalation	5%	$3,902,538.31
2022 – 5% escalation	5%	$4,097,665.22
2023 – 5% escalation	5%	$4,302,548.48
2024 – 5% escalation	5%	$4,517,675.91
2025 – 5% escalation	5%	$4,743,559.70

5. Palo Verde Mountains Trail Network

5.1 Proposed Trails

Description: A trail plan for the Palo Verde Mountains has been developed for the County by a consultant and follows the graphic shown in Figure 18 on page 70. These trails are intended to be single-track trails that follow the existing grade with minimal impact beyond the trail width proposed. Most of the trails are 2 feet in width. Wider trails are proposed near the two trailhead sites to anticipate increased foot traffic at these locations. These wider trails are also intended to have a low degree of difficulty, which may allow the County to offer a barrier-free trail option. Wider trails are also proposed for the two trails intended for equestrian access. The proposed trail name, width, length, and impact are shown in Table 12. The Ascent Trail is a possible trail connection from the Table Top Road site to the overall trail network. The total length of trails proposed is approximately 26.4 miles, of which 23.41 miles of within Category II Sonoran Desert Tortoise habitat and 3.67 miles occur within the R&PP sites.

Intended use: The intended purpose of these trails varies from exploring the natural desert with friends and family, taking in scenic vistas, exercising, and experiencing solitude in nature. These experiences are factored into the routing and level of difficulty proposed for each trail.

Intended users: These trails are open to the public for multi-use, non-motorized traffic including hiking, biking, and equestrian riding.

Design criteria: When necessary, trail erosion mitigation and edge treatments will be installed to ensure the stability of this trails and user safety. The site impact of these named trails is calculated based on the proposed width plus an additional foot of clearance on each side.

Table 12. Proposed Trails and Site Impacts

	Dimensions (in feet)			Impact (acres)		
Trail Name	**Width**	**R&PP Length**	**Total Length**	**in R&PP**	**in Desert Tortoise area**	**Total**
1. Horse Connection 2	3	181	8,995	0.0208	0.6143	**1.0325**
2. North Summit	2	-	2,098	-	0.1927	**0.1927**
3. North Pass Loop	2	679	18,301	0.0624	1.6805	**1.6805**
4. Vista Loop	2	-	7,698	-	0.7069	**0.7069**
5. South Summit	2	-	1,380	-	0.1267	**0.1267**
6. South Pass	2	-	10,654	-	0.9783	**0.9783**
7. Horse Connection 1	3	1,243	2,118	0.1427	0.0978	**0.2431**
8. Nature Loop	5	3,065	3,118	0.4925	0.5011	**0.5011**
9. Cliff Loop	4	242	4,256	0.0333	0.5862	**0.5862**
10. Connector	2	-	12,699	-	0.9995	**1.1661**
11. Mountaineer	2	-	3,367	-	0.3092	**0.3092**
12. Traverse	2	-	7,372	-	0.6770	**0.6770**

Table 12. Proposed Trails and Site Impacts

Trail Name	Dimensions (in feet)			Impact (acres)		
	Width	R&PP Length	Total Length	in R&PP	in Desert Tortoise area	Total
13. Desert Loop	2	-	10,311	-	0.9468	**0.9468**
14. Ascent	2	215	14,376	0.0197	0.7429	**1.3201**
15. Loop Connect	5	689	0	0.1107	0.0249	**0.1107**
16. North Loop	5	4,495	0	0.7223	0.3228	**0.7223**
17. East Pass	2	3,110	12,436	0.2856	1.1420	**1.1420**
18. East Loop	2	3,838	5,851	0.3524	0.5373	**0.5373**
19. South Loop	2	1,630	9,404	0.1497	0.8635	**0.8635**
Total		**19,387**	**120,231**	**2.3922**	**12.0505**	**13.8430**

5.2 Barrier Controls

Over time, these trails may become overused, damaged, or eroded, and pose a danger to park visitors. Therefore, it is necessary to anticipate the need for trail closures either on a temporary or permanent basis. When this occurs, signage as well as barriers will be posted to inform visitors that the trail is closed to restrict unwanted access. If a trail is only temporarily closed, simple measures such as signage and temporary fencing may be placed to redirect park users. When a trail requires permanent closure, vegetative restoration of the trail will be necessary prevent continued trail use while blending with the natural appearance of the area. A combination of placing local boulders, downed vegetation, and signage at the point(s) of closure will aid in restricting access and allow restoration through revegetation management efforts.

The placement of boulders and other natural materials creates a physical barrier that makes it unappealing for visitors to access closed trails. When used as a vehicular barrier, boulders should be large enough as to not be easily moved either by human force or with the assistance of a vehicle. Boulders should be at least 3 feet by 3 feet by 3 feet and the bottom third of boulders in the foreground should be buried to reduce the ease of moving them out of place. Boulder selection should take into consideration the geology of the area and match the existing rock formations in color, placement, and size as much as is feasible.

The addition of natural vegetation such as downed tree limbs may also be necessary to further deter unwanted use of abandoned trails. Placement of broken branches and limbs from native plants should be placed over the closed trail for a minimum length of 20 feet to emphasize the trail closure. These measures should be located at both ends of the trail closure to prevent accidental access.

Signage can further emphasize the reason for the closure and help visitors understand their responsibility to maintain and manage the natural beauty of the park. For vehicular traffic, additional signage may be necessary to alert riders of an upcoming trail closure to provide a safe stopping distance.

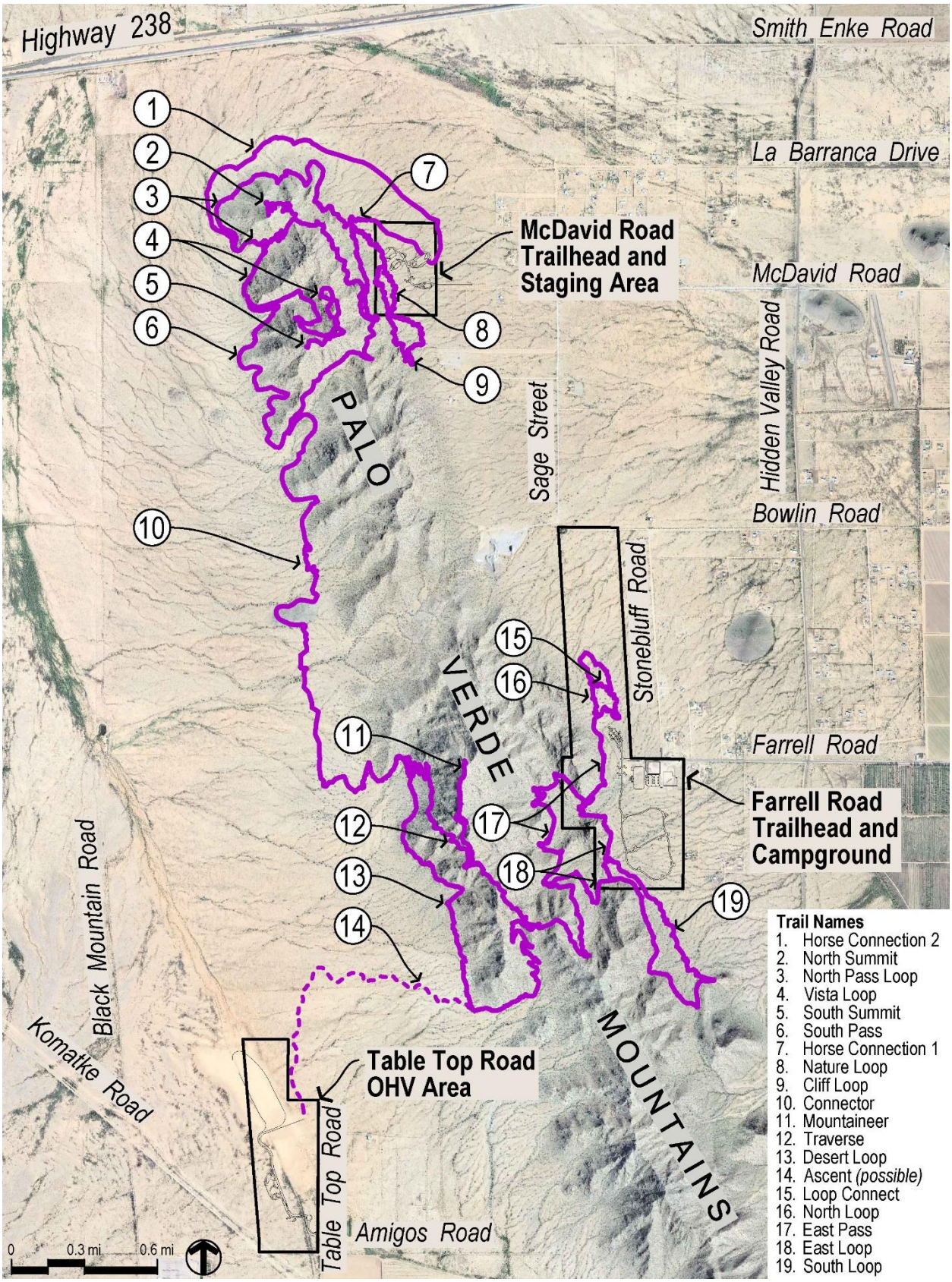

Figure 18. Trail Network for the Palo Verde Mountains

6. Management Plan

The management of the proposed facilities will be the responsibility of the Pinal County Open Space and Trails Department. The typical high-peak season for visitors occurs during the fall, winter, and spring. During these seasons, volunteer hosts are intended to provide additional operational support.

The three development areas have been sited to capitalize on nearby roadway and/or utility access for the least amount of disturbance to the natural ecology. This convenience in turn provides access to an ideal natural setting for a greater number of residents and visitors.

Law enforcement as well as search and rescue operations for the three development sites are intended to be provided by the Pinal County Sherriff's Office.

Pinal County will consider a commitment to maintain the area through an R&PP lease of the subject property to Pinal County by the BLM. Pinal County will offer the following:

1. Maintain the subject property, which is open to use by the public for recreational purposes, without discrimination or favor.
2. Institute no more than a reasonable charge for the use of any facilities development on the subject property (whether by concession or otherwise), and to charge no more entry and use of the areas than is charged at comparable facilities managed by the state and local agencies. Pinal County agrees to submit to the BLM a schedule of charges, and all charges shall be subject to review for conformance with this requirement and appropriate modification by the Secretary of the Interior or his/her delegate after reasonable notice and opportunity for a hearing.
3. Develop and manage the lands in accordance with the approved program of utilization as submitted in the R&PP application.
4. Secure the approval of the Secretary of the Interior or his/her delegate of all plans of construction prior to commencing actual construction activities.
5. Maintain in satisfactory condition the facilities on the subject property.
6. The County will coordinate with the BLM to establish a management agreement that determines and defines access control into the BLM land that encompasses the Palo Verde Mountains area.